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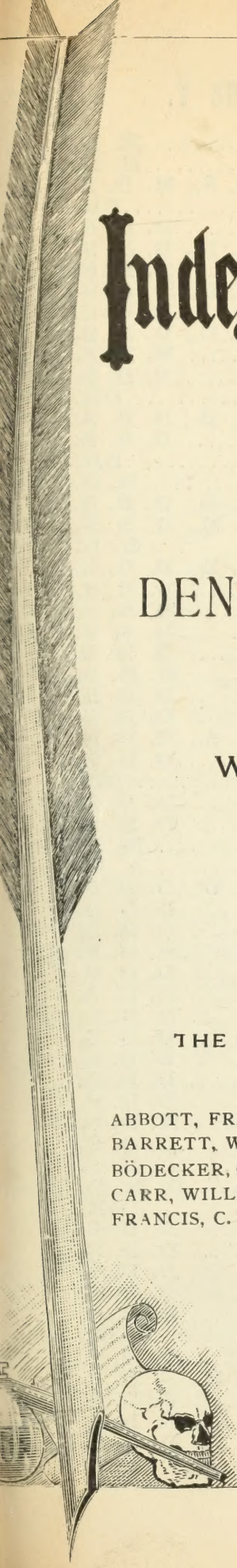
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A DAY'S PRACTICE.

BY N. S. JENKINS, D. D. S., DRESDEN, GERMANY.

READ BEFORE THE AMERICAN DENTAL SOCIETY OF EUROPE, AT COLOGNE.

On a pleasant Monday morning in the month of May, an American dentist in a Continental town entered his office with a cheerful heart. The day before his pastor had preached most eloquently upon the trials of Job, concluding his discourse by saying: "Rejoice then, my brethren, not only over this great example of the glorious triumph of the all-patient Job, but also that your weak faith can never, under the modern dispensation, be called to meet such trials."

With these words still ringing in his ears, this good doctor, as I was saying, entered his office with a cheerful heart; but his young lady assistant met him with a troubled air, holding a number of letters in her hand. "Every moment is occupied to-day, Doctor, but several people have sent word that they must see you immediately."

Madame Wheinoffska writes: "Something troubles me upstairs in the background of my mouth. I have dreadful pains, and cannot rest a moment. I will come at your house at twelve, for even if it is your breakfast, I am sure you will be so amiable to see me."

"Well if she is suffering pain I must give her my lunch time. What else?"

"Madame de Katkoff says : 'When passing through Paris three weeks ago, I consulted your compatriot, Dr. Bull, and he did make me a large *plombe*. Yesterday it quite fell out while eating a little bird. Please be so kind to take me this day, for I must depart for Russia immediately.'" "Well, let her come at a quarter before eleven; that's during Smith Thompkins' hour, but he is a good fellow, and will gladly give up part of his time to a lady in distress. Anything else?" "All the others can wait except this one. 'Lady Buzz will call on Mr. Blank at about twelve, to-day, to have a tooth stuffed.'" "Well I can only let her come for an examination. Now then, show in the half-past eight o'clock patient."

Second Lieutenant Von Zarsky enters with a nervous alacrity of movement, very unlike the stately ceremonious manner that he cultivates so successfully in society. His spurs jingle, his sabre clanks, he drops his helmet while offering to shake hands with the doctor, and when the fraeulein picks it up for him he murmurs something about not having slept all night for anxiety as to what this hour was to bring forth.

"You see, much honored Doctor," says this brave son of Mars, "I can stand anything, only pain of the teeth not. This is a peculiar susceptibility of mine, and I beg you to be considerate of my weakness." A moment's examination shows a broad horseshoe-shaped denture, the second and third molars curving inwards after the manner of the South-German jaw, suggestive of that far-off time when Slavic and Teutonic blood was mingled in the *Voelkerwanderung*. There were numerous cavities in the molars, and the first superior bicuspid was broken down and abscessed. These roots the doctor decided to treat and pivot, but seeing what unreasonable terror had taken possession of his patient, he found that he must first gain his confidence. "There are many operations to be made for you. They will not be painful, but rather tedious. To-day I will make but one, that you may see how easily it goes, and then hereafter you will come without anxiety." Then with very gentle

touch, and carefully studied deliberation of movement, with the delicate use of wheel, drill, and excavator, allowing the patient to see each instrument and to understand its use, a crown cavity is slowly excavated and quickly filled with three cylinders of soft gold, packed with lateral pressure and condensed by the mallet. The patient is conquered. The excited flush on his cheek gives place to his natural color. The great drops of perspiration are wiped from his brow, and do not return. His spasmodic breathing gives place to his slow natural rhythm, and he no longer evinces an uncontrollable desire to spend forty seconds in every minute in rinsing his mouth. As the Lieutenant departs with words of real gratitude on his lips, and readily assumes again his formal dignity of manner, the doctor knows that hereafter this patient will give him but little trouble.

The nine o'clock patient now enters. She is a delicate American girl, who is suspected of having spinal disease. A glance at her mouth shows rather small, bluish white teeth, with very thin enamel, somewhat stained by the mineral waters she has been drinking, and a great number of solidly packed and beautifully finished gold fillings, some of which, where the frail edges seem to have been malletted too severely, threaten to necessitate repair at no distant day. But she has come to-day to have the right superior second bicuspid refilled. "Do you use hard or soft gold, doctor?" she enquires. "Sometimes one, sometimes both, sometimes neither. But why do you ask?" "My dentist uses only hard gold, and the electric mallet, and he told me to be sure and not let any one in Europe touch my teeth who did not work exactly as he did." "Then you must wait until you go back to him, for there are not two good dentists in the world who use exactly the same methods." "But I can't do that, for I am not going home for two years, and I think the neuralgia from which I have been suffering may come from this tooth."

Examination shows a beautiful contour filling in the posterior approximal surface and crown of the bicuspid, loose, with some frail edges of enamel broken away, and the whole tooth blackened by decay under the filling.

A touch of the chisel removes the weak point of crown enamel which retained the filling in place, and as it falls into the hands of the operator the full extent of the disaster is revealed. Caries had attacked, not only the bicuspid, but also a saucer-shaped depression high upon the anterior approximal surface of the molar, at the bottom of which cavity palpitated an exposed pulp. The doctor's first impulse was to treat the exposed pulp only, at this sitting, but the patient begged to have the bicuspid filled if possible, saying: "I sat three hours to have this tooth filled, two years ago, and as I feel so strong this morning I should like to have it done now, since I cannot reckon on my health. I do not at all mind pain. I am well used to suffering." The doctor inwardly commented upon the barbarity which could give such a patient a three hours' sitting, but said nothing and commenced his work. With files, and corundum disks and points, he quickly cut down the edges, approximal and crown, to a perfectly smooth surface, sacrificing perhaps a sixth part of the breadth of the bicuspid, but gaining walls strong enough to endure the force of mastication. The root, into which the discoloration had not extended, was well filled with oxy-chloride of zinc. The rubber dam was applied to both teeth. The pulp of the molar was touched with creosote and capped with Weston's non-irritating cement, while the bicuspid was most carefully excavated until every particle of discolored dentine was removed, and then filled with phosphate of zinc. As soon as this filling had hardened sufficiently, good retaining points were made in root and crown, and various portions of the phosphate were removed until a good anchorage was everywhere secured, except at the buccal edge, where only a thin shaving of the phosphate was taken away, and then amalgam was carefully packed over both the phosphate and the Weston cement. The color of the bicuspid was restored. The frail walls were supported by the cementing power of the phosphate, and the cement in both teeth was protected from disintegration by the amalgam, which was left to be polished at a later sitting. It had required a little over an hour of rapid but most careful work to make these perfectly practical operations, at the least possible strain upon the patient, but as she went away she was heard to say to her

maid : "I have no confidence in operations not made with gold, and which do not hurt more than that."

Smith Thompkins came at ten. He had been a sickly boy, and his teeth had been neglected until pain sent him to a dentist, who chloroformed him and extracted all the upper molars on the right side, and all the lower molars on the left. He was now forty years old, and was manifesting gouty proclivities. Mucous and saliva gave an acid reaction, and wherever his bicuspid and incisors touched, and at any weak spot that he could not reach with the tooth brush there was abrasion of the enamel and wasting of the dentine, until it was necessary to build out extensively with gold. To-day the point of a cuspid was to be restored, and it was desirable to work rapidly, as the doctor had determined to send him off at a quarter before eleven, to receive Madame de Katkoff. But Smith Thompkins was a man of views, and to-day he insisted for the tenth time upon giving the dentist his theory of decay, which he believed in his case to be the result of taking rhubarb in his third year, and he wanted to examine his own teeth and give a minute description of how each one had been treated, and to tell how chloroform affected him, and what his father's maternal aunt had died of, and how his great-grandfather at the age of ninety-eight had never had toothache in his life, his longevity being probably due to New England rum, and where was the best place to buy cigars, and who would be the next President of the United States, until the doctor in the very midst of a syllable slipped on the rubber dam, and told his loquacious patient that he must be very quiet or the consequences might be serious. For a few seconds ether spray was thrown on the abnormally sensitive tooth, and then with a chisel-sharpened burr-drill, retaining points radiating away from the pulp were bored beneath the glassy surface, and the points connected by a narrow channel, grooved by the dental engine. Sponge gold was used in the most shallow of the retaining points, then annealed Williams' pellets, and the point was rapidly assuming its proper proportions, when a card was brought in. "Please, dear Mr. Doctor, see me and my little boy for an instant at once, on a matter of greatest importance." The doctor glanced at the hour. Ten minutes

remained before the appointment with Madame de Katkoff, and he needed all this time for Smith Thompkins.

"Well, perhaps it is only for an instant ; show her into the 'Co.'" (We called the Consultation Office *Co.* for short.)

Assuring himself that the rubber dam was firmly attached, and cautioning his office girl to watch it, he told Smith Thompkins that he would allow him to rest a moment, and darted off to the Co. There he found a Frenchwoman in a state of great excitement, driving a pretty boy of seven nearly distracted by her frantic appeals to be tranquil. "Be tranquil, dearest Adolph, for the love of God be tranquil. The good doctor will do nothing to you ; he will only look at the naughty tooth and give you some nice medicine for it." "Well, what is the matter?" "Oh dear, Mr. Doctor," (speaking in a language which the child did not understand,) "one of his lower front teeth is loose, and it ought to be taken out, as it moves so much that he can't eat, and I am so afraid, for he is such a delicate child. Please take it out quick, but tell him you won't touch it." "Have I not told you before that it is both wrong and foolish to deceive a child ? Were I to do so now how could I manage him when there was something really serious to be done ? Come here, my boy, and let me see what the matter is—Bah ! that is nothing. The tooth is so loose that I can teach you how to take it out yourself. Give me your finger, then press so on one side while I press on the other, and there it is, all right. Good bye," and the doctor runs back to his office, leaving the fond mother in an ecstasy of delight over the tranquility of her Adolph. He arrives not a moment too soon. Smith Thompkins has been telling the office girl about his estate on the banks of the Mississippi, where he has spent over one hundred thousand dollars on embellishments, which he now regrets, and what a superior and very extensive education his wife has enjoyed, and what is the price of tenderloin beefsteak at St. Louis, and how the duke of Noland once said to him ; "My dear Mr. Smith Thompkins, all you Americans have the grand air." Just then the doctor put his finger on the rubber dam and barely saved an inundation. A few minutes of rapid work and the contour is completed, and Smith Thompkins consents to come again

next week for the polishing, but pauses with his hand on the door to tell the doctor how they cure hams in Norway, and to ask the address of the best hairdresser, and to call his banker a grasping Jew, and to say that the American Consul who can't play poker is unfit for his post, when he is gently precipitated into the reception room where five ladies all rise simultaneously and say in three different languages, "Good morning, Doctor!"

Smith Thompkins appalled into silence glides out, while the doctor, selecting by instinct the Russian, begs Madame de Katkoff to enter his office, and sends out his fraeulein, armed with the appointment book, to negotiate treaties of peace with the other ladies. Madame de Katkoff relates with great volubility her experience with "Dr." Bull, of Paris, and ends by taking out of her purse a flattened lead shot, saying triumphantly, "There, I thought the fillings of American dentists never fell out." The doctor examined the little missile and replied, "The gentleman you call Dr. Bull is neither an American nor a dentist. He is an English mechanic, and the diploma you saw hanging in his office was bought in Philadelphia. He is a person to whom no dentist ever sends a patient, unless it be for a simple piece of mechanical work, which he does very well. Still this is not his filling which I hold in my hand, but the occasion of death to that little bird about which you wrote to me." Mr. Bull's filling was then examined and found to be an already somewhat disintegrated phosphate, but promising to hold tolerably for six months to come, when Madame de Katkoff was to be again in Paris, and she was dismissed with a Paris address, where there is no bogus diploma hanging on the wall, but where the tooth will be filled so as to last her a lifetime.

As she departs the fraeulein announces; "the Duchess, due at eleven arrived before her time, and has been waiting impatiently; there is also a Sister bringing a card from Prof. Gutman"; (the head of the city hospital). The doctor reads: "My dear Colleague; one of our nurses has been suffering from obstinate neuralgia and I begin to suspect that it arises from the teeth. Please give her necessary treatment and oblige," etc.

The doctor enters the reception room and bowing to the duchess

says: "Your Highness, punctuality is the politeness of princes—and of doctors; but here is a lady whom a colleague has just sent to me in great suffering; of course you will permit me to see her first." "Um; yes, certainly; only I hope it will not be for long." "Not a moment longer than will be absolutely necessary to relieve her."

But it is an obscure case. All the molars on the left side have been extracted. The pain which comes periodically and is increased by extremes of temperature, is wholly on the right side. The teeth seem to be without blemish, and are not sensitive to percussion. The doctor is almost inclined to think that here is at last a case of inflammation from pulpstone. But after a time the electric light discloses a slight opacity between the superior first and second molars. A touch of a point of ice at this place increases the pain instantly; chisel and revolving disk are at once brought into play. The brave little woman although worn by three weeks of suffering does not wince, while the doctor, as tenderly and quickly as possible, makes a practicable approach to two very obscure cavities and finds exposed pulps, so inflamed that the only treatment is extirpation. "Perhaps it is better to extract the tooth," says the sister, "for I have only this week. Next Monday I am ordered to another station." He has not a free hour during the week, but he brushes away the temptation like a cobweb. "No, Sister, I cannot let you go to your self-denying labors with no molars to masticate your much-needed food, and I should like to punch the head of the man who took out those on the other side of the mouth. I shall take you every day between other patients, until I get you in order. Good bye; you will sleep to-night."

The Duchess enters. Her maid of honor removes her bonnet, and takes charge of her gloves, and opens her fan, and humbly subsides into a corner while the duchess speaks.

"It is six months since I have been in town, but four weeks ago I noticed a discoloration on these teeth," (showing her left inferior bicuspid). "I went to the learned Prof. Knowall while passing through Vienna, and he assured me that it was a mushroom growth, for which the only cure is treatment with an acid which would dis-

solve the lime in the tooth, and enable the bacteria to bore holes into the nerve. But still it looks ugly, and I thought perhaps you could give me a good advice how to get rid of these mushrooms without so great injury to the teeth." "But, your Highness, that is only tartar. It is a calcareous and not a mushroom growth, and will disappear at once upon being touched with a scaler and polished with pumice. Look and see how it disappears." "Yes, but Dr. Knowall showed me under the microscope how these mushrooms were formed, and how the bacteria bored into the nerve, and assured me that it was of no use to remove them except with an acid which would destroy both mushroom and tooth, but which would not affect the bacteria; and I can't look so ugly, and I can't loose my teeth, and even if you have made them white now I know those awful mushrooms will grow again, and then what shall I do?" "Your Highness, I have already had the honor to inform you that this stain which I have removed is tartar, and not a mushroom growth. It has come upon these teeth only because they are protected from the tooth-brush by the prominence of the cuspid and first molar. It is only necessary to use a small brush, and to be sure to reach these depressed surfaces with it, to keep them in perfect order." "But if this mushroom growth attacks my other teeth and the bacteria bore into my nerves everywhere, what shall I do then?" "Consult Prof. Knowall again. He will have a more consoling theory by that time." But this duchess was only to be comforted by a new prescription for a tooth-powder, warranted to be sure death to mushrooms and bacteria, and as she marched away the doctor felt a momentary comfort in the thought that his fraeulein had written her down in the appointment book as the *Dutschess*.

Noon had arrived, and with it Madame Wheinoffska. Tall, graceful, vivacious, the very picture of health, she at once assumed the most distressed air upon entering the office, and said mournfully: "Dearest Doctor, I am suffering frightfully. I can neither eat, nor sleep, nor talk, nor sing. I fear I am going mad with this dreadful pain. At one moment it is in my cheek, then in my teeth, then in my brain. But don't hurt me. For the love of Heaven

have compassion on my distracted nerves. It may be rheumatism of the head ; may it not ? ” “ How long have you suffered ? ” “ Three days. ” “ Does either heat or cold affect you ? ” “ No. ” “ Nor the wind ? ” “ No, but I cannot bite. It is agony when I try to eat. ” A short investigation discloses a fishbone sticking in the gum between an upper bicuspid and molar. After much groaning and many threats of an intention to faint, the bone is drawn out and an immediate cure effected. “ There is no danger of a fistula from the operation, I hope, ” says the bright creature as she trips away.

Lady Buzz is now received. “ I will only detain you a moment, Mr. Blank. Just poke a little stuffing into this tooth if you please, and be so good as to look at the teeth of my daughter and my niece. ” “ I am very sorry, but there is no time to-day to make an operation, but I will see what is to be done and make a future appointment. ” “ But I should be very sorry to have endured this tropical heat for nothing. ” (it was sixty-five degrees Fahrenheit in the shade). “ My dentist in London lets me come when I like, and every three months he puts in a little stuffing, and it never takes him five minutes. ” “ After a few more such treatments there will be no more teeth to stuff. I cannot fill that tooth properly in less than an hour, but if I fill it for you, it will be a permanent operation. ” “ Well then, please look at these two young ladies, and tell me why my niece does not have such good teeth as my daughter. ” “ Because she had a Scotchman for a grandfather. ” “ How do you know that ? ” “ Because she has a long and narrow jaw, thin enamel and bluish white teeth, long and thin like the jaw, and dentine so soft that a small cavity easily penetrates to the pulp. Your daughter, on the other hand, has a broad square jaw, and firmly set yellowish white teeth, Anglo-Saxon to the very pulp ; hard as flint, and capable of standing a treatment when once decayed, of being ‘stuffed’ in five minutes. All the unbolted flour and oatmeal in the world will not build up the teeth of your niece so that they will not need frequent care at the hands of the dentist ; but your daughter may have her teeth treated by a barber’s apprentice, and they will still live to tell the tale. ”

There are yet ten minutes left before the next patient is due, and the doctor takes a bite of lunch, while dictating a letter and two telegrams, and rushes back to his office to receive Madame de Patoffska and her daughter. They are strangers. *Polen ous der Polakai*. Both are trembling violently. There are tears in the mother's eyes and voice as she says: "We have just arrived from Warsaw, according to your kind appointment, but I am afraid to no purpose. My daughter is so delicate and faints so easily that I fear she can never bear the pain of having her tooth treated. For Heaven's sake be careful, and do not give her pain, for she has never had anything done to her teeth before." After many preliminaries and frequent asseverations of her daughter's weakness and nervousness, (she appeared but for her fright to be in perfect health,) the patient is seated in the chair. The doctor took up a mouth mirror, but as he approached her mouth with it the patient caught at his hand and screamed. The mother, who was holding her left hand with averted head, groaned and cried: "Gently, dear Doctor, for God's sake, be merciful. Please, please, be careful of my poor weak child!" "But this is nonsense," said the doctor, sternly; "If you will be quiet I will examine your teeth and tell you what there is to do, and I will not hurt you. But if you cannot control yourself I have no choice but to send you away." "But we can't go away after coming so far, and we want the teeth put in order; there, see; she will be patient. Grasp my hand, you poor dear, and compose yourself."

At last, after many groans and writhings, and countless sighs, it is possible to discover that the patient has only a few small cavities in accessible situations, and a great abundance of tartar, irritating the gums and making the mouth most unsightly. The doctor says: "Now be reasonable; what I have to do for you will give you no pain, but you must be quiet unless you wish to hurt yourself. *I won't hurt you!*"

At that moment he is called to the Co. to change a wedge. Upon his return he finds mother and daughter on their knees, and praying before a great penwiper hanging high on his writing desk, bearing on its front a gorgeously worked representation of the

Father of his country. They rise, and the daughter being either strengthened by her devotions or comforted to find that it really doesn't hurt, gradually ceases to groan and cry, and only sobs convulsively from time to time, and kicks occasionally like a jumping-jack. After making a simple gold filling, the doctor polishes one front tooth to perfect whiteness, knowing that the patient will be more tractable if she can entertain a hope that all her teeth will eventually look like that.

As they depart, the mother enquires: "What Saint is that?" "The American Saint George, Madame! When his country was in danger of running down hill, he put the drag-on. He was cannonized in his time, but not by his Highness, the Pope."

Miss Daisy Miller is now announced. She comes in dragging Randolph by the arm. "Mother says she wants you to give Randolph gas, and pull out two lower teeth which hurt him when he eats candy. He had a lot taken out just before leaving New York, and candy only just now begins to hurt him again."

A glance shows that all the lower temporary molars have been taken out before their time; only the sixth year molars are left, and the lower jaw, having only a slight occlusion at the incisors, has begun to protrude. The sixth year molars are considerably decayed, but the pulps not exposed. "It will never do for this child to lose any more teeth. He can hardly eat as it is. These teeth must be filled, and then they will hurt him no more." "Mother don't believe in filling teeth which have ever hurt. A dentist put something in one of her teeth once to kill the nerve, and pounded in a filling the next day with a hammer, and after a week her face swelled up awful; and she just went and had all her upper teeth out, and hasn't had toothache since."

"Nevertheless I decline to take out Randolph's teeth. The child's troubles can be cured much more easily and certainly by filling than by extracting. No enlightened dentist now thinks of extracting teeth because they give pain." "Dear me; *my* dentist out West always takes out aching teeth, and at Colton's, in New York, they don't do anything else." "It is useless to continue this discussion. Shall I treat Master Randolph as I think best or not

at all?" "Yes," cries Randolph, "I'd a heap rather have 'em filled than pulled out. You just shut up, Miss Daisy, or I'll tell the Doctor where you buy your back hair."

The rubber dam is quickly adjusted, and the work commenced, but the doctor finds Randolph very restless and inclined to weep at the least suggestion of pain, but at last, by a copious use of carbolic acid and working with very sharp excavators with the lightest and most delicate touch, one cavity is excavated, floored with agate cement, and filled with cohesive gold, and Randolph sent away to try if candy hurts that tooth any more.

Next comes Fraulein Jagerson. Her father died in raging madness. She is tall, thin, angular, intensely nervous. Her teeth are attacked readily by white decay, and the most superficial cavity is sensitive to changes of temperature, to sweets, acids, or salt, and to the slightest touch. The doctor is tired, and he sighs as he remembers former sittings with this patient. To-day an approximal cavity on a superior first bicuspid is to be filled. Space had already been laboriously made during the previous week by the slow process of wedging with dry cotton, the only pressure that this patient can endure. With slow and gentle movement the doctor adjusts the rubber dam. The patient shrinks as the rubber touches her cheek, she groans as it is slipped over the teeth, she clasps her head with both hands as the ligatures are tied, she weeps as the cavity is dried and the air finds unobstructed access to the sensitive decay. With careful touch the doctor begins to smooth the rough margins with a thin file, while the tall form of the patient shakes and shudders like a galvanized frog. His patience is nearly exhausted, and he is on the point of a sharp remonstrance, when the memory of One who has borne our griefs and carried our sorrows comes to him, and with fresh compassion he tries anew to quiet and soothe his struggling patient. As on previous occasions, so here he finds that he can only excavate after a prolonged use of obtundents, and even then but by the exercise of the greatest care and most delicate manipulation. But at last the cavity is excavated, and filled with soft gold about the margins and cohesive gold in the center, and Fraulein Jagerson is dismissed. The doctor rejoices to know that

the next patient is a man. He has a left inferior wisdom tooth half erupted and already decayed, with a third of the cavity under the gum. He has such a sensitive throat and palate that he can bear no touch back of the second bicuspid, and so the cavity has to be dried and filled with great rapidity, as the use of any sort of napkin is here impossible. Four cylinders of tin and gold are used in this case, and although the filling suffers an inundation as the last cylinder is being packed, it is well condensed and promises to do good service.

Now come two treatment cases to be advanced a stage. Then a partial plate is placed in a mouth where syphilis and mercurial treatment have loosened the teeth and softened the gums so as to make its adjustment a matter of great difficulty, and the doctor is inclined to rebel that this man's sin should have laid upon his over-taxed nerves, with so much otherwise unnecessary trouble.

Last of all comes a girl of fourteen to have the right superior first molar extracted. This is a regulating case. The molar is decayed down to the gum, and slightly abscessed. It is desirable to remove it to obtain room in the crowded jaw. On a previous occasion a cavity half an inch deep had been bored in the palatine root, and a stout piece of rubber placed between the first and second molars to loosen the tooth. A screw is now inserted into a hole in the root, and with a simple movement the tooth is slipped out entire, leaving the thin alveola perfectly uninjured and ready to receive and firmly hold the crowded bicuspids.

The day's work is done. Every nerve palpitates with the strain of bearing other people's burdens so many hours, but the doctor hears the brisk step of his boy returning from school to go out on the last train to their summer house in the country with his papa, and his spirits revive,—when the card of Miss Rodgers is handed to him, with a request for a moment's interview. Miss Rodgers is a poor governess whom he treats out of charity. A superior lateral incisor, drilled and mutilated years ago in England, and which he has been holding together for the past three years with phosphate, has been broken off. The poor girl is in despair. The next morning she is to journey to Vienna to apply for a new situation, and

cannot appear in such a plight. The doctor gazes wistfully at the western hills. "There are his young barbarians all at play." He remembers how his little girl said to him a few days ago; "Papa it would be so nice in the country if only we saw more of you." And then he thinks, twenty years from now my girl may need some one's compassion, and he sends word for the boy to go alone, and to say that he will drive out to a belated dinner, and begins to prepare a Bonwill crown for Miss Rodgers. But the gum is much absorbed, and the root rather short if ground down to the margin of the gum, and he must make a joint where no stain of amalgam can possibly shine through. So at last he decides to set the pivot in the crown that evening with amalgam, to leave it to harden during the night, and to come in half an hour earlier in the morning and set the pivot then in the root with phosphate. So the pivot is set, and the amalgam packed, and Miss Rodgers is dismissed for the night.

But as the doctor stretches his weary length in the carriage which is rapidly conveying him to his belated dinner, he thinks with new interest of the patriarch Job, and rejoices once more that under the modern dispensation neither patience nor faith are subjected to a strain greater than we can bear.

A REPLY TO SOME VIEWS ON THE PUTREFACTIVE THEORY
OF DECAY.

BY W. D. MILLER, BERLIN.

In the November number of the *New England Journal of Dentistry* will be found an article by Dr. C. T. Stockwell, Springfield, Mass., on "Micro-organisms the Essential Factor in Dental Caries."

There are two sources of error to which every experimenter is exposed; he may err in the work itself, and he may err in the interpretation of the results of his work. Such errors are of course pardonable, unless resulting from pure carelessness, or pre-formed opinion. One occupying the position of Dr. Stockwell, who claims not to present original investigations, but "logical deductions"

from the investigations of others, is liable even in a greater degree to the same errors, because not having performed the work he cannot possibly enter into the real significance of it as well as the experimenter himself. He is, moreover, liable to additional errors in misunderstanding or improperly interpreting the work of the author, and in unconsciously picking out from that work those portions which best suit his logical deductions. All of these errors Dr. Stockwell has fallen into. Especially should his conclusions be accepted with reserve when they differ from those of the investigator, or when they are based upon no experiments at all.

Dr. Stockwell concludes the whole matter at the beginning by a very convenient definition of the subject: "Dental caries does not begin until the putrefactive process of an organic portion of the tooth has been set up." If we say that the death of an animal does not occur till the worms begin to consume its body, then, if you please, maggots caused the death of Polonius; but according to common acceptation a thrust from Hamlet's rapier ended the life of that statesman. Putrefaction is not the first, but the last stage of dental caries. Where Dr. Stockwell got his authority for the contrary he does not state. I have pieces of enamel and dentine which, since May 16th, 1882, have been in contact with putrefying substances at blood temperature and proper conditions of moisture. (Such a piece is now in possession of Dr. Ross, of Chicopee, Mass.) They show no trace of caries, and when, then, any one says, without the slightest semblance of proof for the assertion, that putrefaction of itself produces caries, I cannot respect his statement.

I have given, in the *INDEPENDENT PRACTITIONER* for December, '83, a method by which I have (and every one can) produced caries, which to the naked eye as well as under the microscope is not to be distinguished from natural decay. Dr. Barrett has such preparations in his possession.

The characteristic phenomena of caries begin to show themselves in ten weeks. Now I challenge Dr. Stockwell, and all those of his or any other belief, to discover and publish a process by means of which, without the aid of acids, (by putrefaction alone), one may

accomplish what I have done. Then, and not until then, can they demand that their views be accorded a serious hearing.

I have perhaps done my part to place bacteria on a respectable footing in dentistry. Two and a half years ago, at the meeting of American dentists in Wiesbaden, I pointed out the part which putrefaction plays in caries; but putrefaction does not by any means occupy the first place in the process.

Dr. Stockwell's distinction between fermentation and putrefaction contains some grave errors; he says: "Remember that the product of fermentation is always an acid, while the product of putrefaction is always alkaline, and that both processes are impossible where micro-organisms are eliminated."

Dr. Stockwell has evidently overlooked the whole science of Enzymology, which treats only of non-organized (chemical) ferments; we should soon run ashore if we were to ascribe, without distinction, all cases of fermentation to fungi. He has also forgotten that fungi often contain other ferments than such as produce acid. Many contain a ferment similar to diastase (*clostridium butyricum*); some a ferment like invertine (*leuconostoc mesenterioides*); one at least contains a ferment which dissolves coagulated albumen and converts it into peptone, (*bacterium subtilis*); some even contain a ferment which produces ammonia (*micrococcus ureae*, Cohn—*Ferment der Ammoniak*, Gährung), etc., etc. I have claimed for many months that the acid of tooth-carries is produced in the mouth by fermentation, and was for a long time uncertain whether the ferment was organized or chemical; it required a vast amount of labor to show that it was the former.

That part of Dr. Stockwell's statement which is sufficiently accurate, viz: "the product of putrefaction is always alkaline," contains in itself a complete refutation of the one point which he would like to establish. The product of putrefaction being always alkaline, then if caries is simply putrefaction, decaying dentine should always have an alkaline reaction, while as a matter of fact its reaction is constantly acid. Thus unwittingly does the writer annihilate his own theories. Farther on Dr. Stockwell says: "Nothing has been found beyond the organisms." If he had made

and examined a few preparations of carious dentine, he could not have entertained this idea for a moment. Beyond the organisms has been found a zone of softened, partially decalcified dentine, *which may be readily cut with a razor*. You may put a thousand million little "devils" at the end of each dentinal fibril, if you like, to "absorb the protoplasm from the fibrils," and I am afraid the dentine would remain as hard as before. Dr. Stockwell still labors under the false assumption that no decalcification takes place in decay, than which a greater error never hampered a theory of dental caries. The decalcification of the outer layers is almost absolute, and gradually decreases as we approach the normal dentine. Exactly the same is the case with dentine slowly decalcified in saliva and bread. Dr. Stockwell next asks: "What are they after?" *i. e.* what are the organisms after in carious dentine? It hardly seems necessary to answer this question. He knows as well as I do that the decalcified dentine becomes soaked in the fluids of the mouth; the organisms may live at the expense of these fluids, and when the decalcification has progressed far enough they may also live at the expense of the softened dentine itself.

On page 352, Dr. Stockwell tells us what a micrococcus may do to sound enamel. Unfortunately he does not give the source of his authority for these statements. I would ask him if *he* ever saw a micrococcus, or any other species of micro-organism making its way into enamel which was not already in a state of partial disintegration, and if he did not, who did? I have scores of preparations of carious enamel, and have already stated that in caries of the enamel micro-organisms are agents of no consequence whatever, except in as far as they by fermentation may lead to the production of acid. I should like to know where the logical deduction comes in.

At the bottom of page 351, Dr. Stockwell confuses one of my statements, and comes at last to the conclusion that "if the invading agent was a destructive acid the tortuosity and angularity would never appear at all." If the writer will refer to my article he will see that this is exactly the case, as I stated it, "so that one may draw a curved line through the preparation and say: on one

side is normal, on the other softened dentine." The fungi advance irregularly, the decalcification with considerable regularity. It is a serious error, when one does not investigate himself, but on the contrary perverts the work of others.

At the bottom of page 352, Dr. Stockwell again gives expression to his convictions that everything which precedes putrefaction is not to be regarded as part of the carious process; *i. e.* the enamel of a tooth may be destroyed, the dentine decalcified and softened, and its organic portion permeated with oral secretions and every way laid bare to decomposing agents, to which it was previously invulnerable; all this, according to Dr. Stockwell, would not be called the beginning of caries. A man receives a severe wound in the abdomen and dies some hours later of peritonitis; we say that his death was caused by a wound in the abdomen. Every tooth must be very severely wounded by acids before putrefaction sets in; the wound is the cause, putrefaction only one of the later stages in the disease, and in this case can only occur in consequence of, or subsequent to the wound.

At the middle of page 353, the doctor gets a glimpse of the truth, but loses it immediately afterward on the bacterium termo. I would like to ask Dr. Stockwell if he is sure that bacterium termo is found in considerable numbers in carious dentine. Is he sure that it is found at all at the head of the invasion? Has he ever obtained it in cultures of carious dentine, and if so, has he found that it has at all the power of softening a piece of dentine so that it may be cut with a razor? Is he aware that later experiments have rendered it doubtful whether bacterium termo is at all to be considered as a true putrefactive bacterium; that for decomposition, associated with offensive odor, the presence of other fungi is necessary? *

Can he give a single reason for considering bacterium termo as *the* one factor in dental caries? If he cannot, why does he invest it with this power?

I have been able to put together the following chain of reasoning from the dental journals: Bacterium termo is found in putre-

* Cohn's Beitr. 1 Bd. 3 Heft S. 214.—Fluegge Handb. d. Hygiene, S. 112.

fying substances (blood, etc.); something which looks like bacterium termo is found in the human mouth,* therefore bacterium termo is the cause of dental caries. If Dr. Stockwell can give other reasons I shall be glad to hear them. Bacterium termo mixed up with other fungi may, no doubt, occur in the human mouth; what of that! there is material enough there for it to feed upon. *Prove* that it has the power to attack sound teeth. It is the complete lack of even an attempt to establish one's views by exact experiment, that characterizes nearly all articles on the putrefactive theory of caries, which have appeared in the dental journals. We would recommend to those who maintain that a purely putrefactive bacterium with its alkaline products is *the* cause of dental caries: 1st. To establish by experiment that such a bacterium exists in considerable numbers in the deeper parts of carious dentine.

2d. To determine the species of said bacterium.

3d. To isolate it by pure culture and study its morphology, physiology, developement, etc., etc.

4th. To *prove* that in pure culture it can cause the decay of enamel and dentine.

If they can do this then, *a la bonne heure*, we shall be ready to give them due praise. If they attempt it without succeeding, the thanks of the profession will still be due them for their work, but if they do not even make the attempt, and go on with ungrounded assertions all the same, then we can pay no respect to such statements, nor can the scientific world regard them. The fact that antiseptics have been used for years with great success in dentistry, does not begin to prove that caries is simply a putrefactive process. Antiseptics, also avert, or completely stop the production of acid by fermentation.

PERSONAL.

Dr. George W. Field of London, has removed to No. 23 Park Street, Park Lane, W., where he will be glad to receive his American friends who are visiting England.

*Many fungi in some stage of developement *look like* bacterium termo.

RELATION OF FOOD TO THE TEETH.

BY E. C. KIRK, D. D. S.

READ BEFORE THE ODONTOLOGICAL SOCIETY OF PENNSYLVANIA, NOV. 3, 1883.

So much of our time is devoted to the repair of carious teeth by the various mechanical methods of filling, that when we are fortunate or skillful enough to succeed in arresting decay by these means we are too apt to feel that we have done all our patients have required of us ; but should our attention cease at this point ?

It is my purpose, this evening, to direct your thoughts to some points relating to the proper nutrition of the teeth, a disregard for which in my belief is one of the most fruitful predisposing causes of caries. For the past eighteen months I have had under my care the mouths of between three and four hundred children, pupils of the Pennsylvania Institution for the Deaf and Dumb, and to the statistics furnished me by the superintendent relating to food, clothing, hygienic conditions, etc., together with my personal examination and supervision of their mouths and teeth, I am largely indebted for what knowledge I have obtained relative to the positive effects of proper food on the teeth. It is only where a considerable number of individuals are provided with the same quality and amount of food, and all the other conditions of living are as nearly as possible equal, that we can hope to obtain reliable data from which to study such a subject successfully and intelligently. The teeth of the deaf mute children present many points of interest, and a close observation of them has served to fix in my mind the conviction that if we would successfully combat the ravages of dental caries, our attention must not cease after we have restored by filling the tissue which has been destroyed—but by instructing our patient, and especially the parent and guardian in the case of children, as to the proper course of diet and mode of living to be pursued during the period of calcification of the bones and teeth, we can secure for them the kind of nourishment required and insure practically sound dental organs in many cases.

On examining the mouths of a class of children recently admitted to the institution, the teeth present no peculiarities worthy of special notice, except in most cases a lack of cleanliness, and an average amount of caries, not greater than we would expect to find in the mouths of the same number of children where no previous dental care had been given, and where brush and powder were unknown; the tooth structure is often quite soft and the decay is largely of the white variety, such as occurs in teeth deficient in mineral constituents.

They come to the Institution from the lower walks of life as a rule, their parents in many cases being poor and unable to provide them with proper food and care; as a natural result there are many whose dentures are riddled with caries, pulps exposed, and the teeth apparently melting away. In those whose deafness is acquired through disease, viz.: scarlatina, measles, cerebro-spinal meningitis, the teeth frequently bear evidences of the high febrile conditions through which the patient has passed, by pits in the enamel, crimped edges, defective form, imperfect developement or soft structure. The majority of the pupils are between the age of ten and twelve years.

After a years residence in the Institution, during which they are given excellent care in all that relates to their physical welfare, a marked improvement will be observed in the character of their teeth; they will be found exceedingly hard and dense, making the wear and tear on cutting instruments very great. Excavators and chisels have to be tempered to the point of brittleness to be effective in preparing cavities; otherwise they will not cut the extremely hard structure. They are firmly set in their sockets, making them unusually difficult to extract.

These are not visionary observations, but the result of repeated tests and examinations carefully made. But the most conclusive evidence which I have met with of the value of their diet table, so far as the nutrition of their teeth is concerned, is the unusual number of cases of arrested caries and the formation of the so-called secondary dentine.

You are well aware that such action can only take place under

the most favoring conditions. Nature never makes an attempt to repair a carious tooth unless she is compelled to it by an excess of tooth and bone-forming pabulum in the blood. I have seen from time to time cases in private practice where this action had taken place, but they occur rarely. Among the pupils of the Deaf and Dumb Institution it is quite common, not only in the permanent dentures but also in the temporary sets, as showing still further the abundance of bone-forming material with which their blood is supplied. I have in two cases removed large pulp nodules from the sixth year molars of children not over eleven years of age; these I considered unique, as I had never met with this formation before in patients so young.

When we consider the change that has taken place in the physical characteristics of these teeth, we naturally ask what has produced such a marked improvement. The diet table approved March 1st, 1882, and which has been in use since that time is as follows :

BREAKFAST.

Children over thirteen years of age may have coffee.

Sunday—Milk, $\frac{1}{2}$ pint; one egg or hash; bread, 5 oz.; butter, $\frac{1}{2}$ oz.

Monday—Milk, $\frac{1}{2}$ pint; indian mush, 5 oz.; bread, 5 oz.; butter, $\frac{1}{2}$ oz.

Tuesday—Milk, $\frac{1}{2}$ pint; oatmeal porridge, 5 oz.; bread, 5 oz.; butter, $\frac{1}{2}$ oz.

Wednesday—Milk, $\frac{1}{2}$ pint; grits, 5 oz.; bread, 5 oz.; butter, $\frac{1}{2}$ oz.

Thursday—Milk, $\frac{1}{2}$ pint; indian mush, 5 oz.; bread, 5 oz.; butter, $\frac{1}{2}$ oz.

Friday—Milk, $\frac{1}{2}$ pint; oatmeal porridge, 5 oz.; bread, 5 oz.; butter, $\frac{1}{2}$ oz.

Saturday—Milk, $\frac{1}{2}$ pint; grits, 5 oz.; bread, 5 oz.; butter, $\frac{1}{2}$ oz.

DINNER.

Soup shall be made of dried beans or peas, or of fresh vegetables.

Dinner may be occasionally varied by the substitution for beef or mutton, of poultry on holidays, or of oyster soup in place of fish or corned beef. Vegetables may be varied according to season. Fresh fruit may be given for dessert in place of stewed fruit.

Sunday—Roast beef, 6 oz. ; gravy, potatoes, beans or beets ; bread, 4 oz. ; stewed fruit, 4 oz.

Monday—Roast mutton, 6 oz. ; gravy, potatoes, cabbage or tomatoes ; bread, 4 oz. ; bread pudding, 4 oz.

Tuesday—Rump steak, 6 oz. ; gravy, potatoes, onions or beans ; bread, 4 oz. ; corn starch or tapioca, 4 oz.

Wednesday—Soup, $\frac{3}{4}$ pint ; Stewed beef, 6 oz. ; gravy, potatoes, tomatoes ; bread, 4 oz.

Thursday—Roast mutton, 6 oz. ; gravy, potatoes, turnips or carrots ; bread, 4 oz. ; stewed fruit, 4 oz.

Friday—Fish, 8 oz., or corned beef, 6 oz. ; potatoes, cabbage ; bread, 4 oz. ; rice pudding, 4 oz.

Saturday—Soup, $\frac{3}{4}$ pint ; roast beef, 6 oz. ; gravy, potatoes, onions or beets ; bread, 4 oz.

SUPPER.

Children over thirteen years of age may have tea.

Sunday—Milk, $\frac{1}{2}$ pint ; bread, 5 oz. ; butter, $\frac{1}{2}$ oz. ; ginger cake.

Monday—Milk, $\frac{1}{2}$ pint ; bread, 5 oz. ; butter, $\frac{1}{2}$ oz. ; stewed fruit.

Tuesday—Milk, $\frac{1}{2}$ pint ; bread, 5 oz. ; butter, $\frac{1}{2}$ oz. ; molasses.

Wednesday—Milk, $\frac{1}{2}$ pint ; bread, 5 oz. ; butter, $\frac{1}{2}$ oz. ; cottage cheese.

Thursday—Milk, $\frac{1}{2}$ pint ; bread, 5 oz. ; butter, $\frac{1}{2}$ oz. ; molasses.

Friday—Milk, $\frac{1}{2}$ pint ; bread, 5 oz. ; butter, $\frac{1}{2}$ oz. ; stewed fruit.

Saturday—Milk, $\frac{1}{2}$ pint ; bread, 5 oz. ; butter, $\frac{1}{2}$ oz. ; molasses.

When we consider that the Institution is a charitable one, we must admit that the food furnished is not only varied in kind but is liberal in quantity. They are not cloyed with sweetmeats or pastry, and while the amount furnished is ample for health, there is no danger of overfeeding and consequent indigestion. The amount of sugar given, including molasses, does not exceed a quantity beneficial to health.

The question might perhaps arise, does not this bill of fare become monotonous, and is there sufficient variety to insure the hearty relish which is so essential to the proper digestion and assimilation of food ? The fact is the children always come to the table with

good appetites, and are firm believers in the course pursued by Jack Sprat and his wife, who as history tells us "cleared the cloth and licked the platter clean." There is an abundance of bone-producing material given, and a proper balance maintained between the starchy and the saccharine on the one hand, and the fatty and nitrogenous constituents on the other.

Oatmeal and wheat grits have been recommended, and justly so, as a proper food for hardening the teeth, on account of the abundance of phosphatic material which exists in the outer covering of the grain; still harm may be done in the improper use of these. I was afforded an opportunity by Dr. Cisenbrey to examine the mouth of a patient of his, a boy of perhaps fifteen years of age, whose teeth looked as though he had lived principally on candy; they were soft and sensitive, with an eroded appearance of the enamel, which though perfectly white and clean was rough and softened as though it had been dipped in a strong acid. The young man was excessively fat. Upon making inquiry of his father who was present, as to his son's usual diet, at the same time calling his attention to the eroded condition of his teeth, he said he was sure his food could have nothing to do with it, for he was very fond of oatmeal, and that was always highly recommended as beneficial to the teeth. Upon asking him if he used much sugar with it, he said; "Oh yes! in large quantities; he fairly covers it up in sugar!" Here then was the secret; the mass of oatmeal was sweetened to an extent almost nauseating, and its nutritive qualities were more than balanced by the fat and heat producing properties of the sugar. His pampered and petted existence, together with a lack of sufficient exercise, had brought about a condition of obesity amounting to disease, and wholly incompatible with a healthy denture.

Nutrition comprehends digestion, absorption, respiration, circulation and assimilation; upon the harmonious action of these separate functions depends life, growth and health.

While the object of my paper has been simply to show the effect that a fixed and uniform diet has had upon the teeth of a given number of children, I would not ignore the importance of proper hygienic

measures and methods of living, without an observance of which proper digestion absorption and assimilation are impossible. Nor would I be understood as asserting that the diet list which I have just quoted is the only proper one to follow.

I have brought it before your notice because I believe it to be important, but by no means the only factor in producing good, strong and dense teeth, at the Deaf and Dumb Institution. It does present some features which, taken in connection with the results achieved, form a basis for some important deductions. The food is plain, well cooked and wholesome ; there is a total absence of sweetmeats and pastry ; the amount of animal food bears but a small proportion to the vegetable ; a liberal amount of whole grain, that which has not had the outer phosphatic envelope removed, is supplied in the shape of oatmeal and wheat grits ; there is a total absence of fried and greasy food, and last by a liberal supply of milk. All this, with a good appetite, and thorough digestion and assimilation, goes far towards accounting for the unmistakable improvement which certainly takes place in the quality of their teeth.

Much can be said and ought to be said about the evils of badly ventilated schoolrooms and sleeping apartments, late hours and the constant overstimulation of the brain by an endless variety of exciting causes ; or what is equally bad, the high pressure system of education so much in vogue at the present time, by which children are loaded down with an amount of mental work which the majority of them are physically incapable of carrying ; this, too, at a time when their most rapid growth is taking place, diverting from its proper function the nerve force which should have been applied to physical development. The result of this state of affairs we see around us daily ; a finely developed intellect, a highly cultivated and educated brain, united to a body, the principal object of which seems to be to make life a burden.

The data which I have presented to you, and the observations upon them, have occupied my thought and interested me for some time, and I bring them to you hoping they may throw light upon, and in some degree add to our knowledge of the causes of dental caries, and especially its preventive treatment.

A NEW METHOD OF FILLING TEETH.

BY DR. C. A. TIMME, HOBOKEN, N. J.

READ BEFORE THE CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

At the last meeting of the New Jersey State Dental Society, held at Asbury Park, I was commissioned a delegate to the meeting of the Society of German Dentists, to be held at Frankfort-on-the-Main. On arriving at the place of meeting I found that our professional brethren abroad had not been idle, but had made steady advances in practice. Among the new and interesting things that I saw, was a method of filling teeth, in which the so-called magnetic gold is employed.

The originator of the process is Dr. Wilhelm Herbst, of Bremen. Magnetic gold is a form of very soft, and at the same time cohesive gold. Its principal point is its purity. If two pieces of No. 30 or 60 be placed in contact, slightly annealed and then rubbed with a burnisher, it will be found that they have become thoroughly united. It is this high grade of cohesion that has given to it the name of magnetic gold.

In inserting it the cavity is prepared in the usual way, but no retaining points are made, a slight undercut being all that is required. No mallet is used, and the first instruments employed are not unlike the burnishers used for finishing fillings with the dental engine. A few cylinders are placed on the floor of the cavity and against the side walls, the proper point is placed in the engine, and while being rotated it is pressed upon the gold, which is thus easily *burnished* into place. The point must of course be quite clean, and care must be exercised that the friction is not so great as to heat the tooth to a point of discomfort.

When the foundation of the filling is laid another instrument is employed, which may be made by breaking off the head of an engine burr, placing the rest in the engine and grinding the end upon an oiled Arkansas stone. The point not being polished, is, when in use, soon coated with a film of gold. Instead of burnish-

ing the surface therefore, and giving to it a high polish, it merely condenses it and leaves upon it a dead surface that does not prevent the cohesion of fresh pieces. Very little force is employed in the operation, and the point is pressed upon the surface only at interrupted intervals. The engine can therefore be run at a high speed without danger of overheating the tooth.

In this manner gold may be introduced very rapidly, and a large filling may be made in a comparatively short time. The whole is finally finished with heave foil, or with cylinders, and polished in the usual way. The German dentists who are employing this method claim that it is a great improvement upon the old way of filling teeth.

Serrated points not only weaken the gold but they leave a rough uneven surface that it is difficult to make smooth. It is also no doubt true that many soft, weak, poorly organized teeth, can be successfully filled with this gold, that would not withstand the malleting necessary in the use of the usual forms of gold foil ; teeth that were formerly condemned to the use of plastic fillings.

To make a thoroughly good filling with this material considerable practice is necessary, but the method once acquired future operations are greatly facilitated.

Some years since a number of dentists besides myself, attempted to substitute smooth points for serrated ones in the filling of teeth. Our efforts were not, however, crowned with success. We have since discovered that the fault was in the gold, and not with us. Theoretically, smooth points should make a more solid filling, and the gold should be inserted in one-half the time required for the use of serrated points. By the employment of this gold, this theory is proved to be correct in practice, and in Germany it is now extensively employed.

BOGUS DIPLOMAS.

Diplomas purporting to be issued by a Dental College at Wilmington, Del., have been offered for sale in London.

THE USE AND ABUSE OF GOLD AS A FILLING MATERIAL.

BY A. N. ROUSSEL, D. D. S., NEWBURGH, N. Y.

READ BEFORE THE SECOND DISTRICT DENTAL SOCIETY.

The first consideration which presents itself to the intelligent judgment of the dentist when about to fill a tooth, is, what is the best material to use for the purpose?

It has been thought for a long time that, in the majority of cases, gold was the only fit substance. Certainly it will make a good filling, and the use of it in the hands of capable operators has done great good; on the contrary, the abuse of it in the *same hands* has done much harm.

There is a general impression prevalent among our patients that gold is *always* the best material with which to fill teeth, simply because *it is gold*, and they would always prefer it were it not for the extra expense. This line of reasoning on their part is solely an association of ideas, and it is not an unfrequent thing for unscrupulous dentists to encourage this impression, for the purpose of obtaining large fees.

As a result of this false reasoning on the part of the patient, and the cupidity of the dentist, we have a real abuse of gold, and that to not a limited extent.

As to the legitimate use of gold: If obliged to establish some definite rule in this respect, or in other words to be asked to draw a line as to where the use of gold should begin, and where it should stop, I would say, fill all the anterior teeth with that material, stopping at the bicuspid. Back of the cuspids use something else, amalgam chiefly. This, it must be understood, is no cast iron rule. Like all laws it is subject to exception and modification, for thousands of bicuspid and molars have been successfully filled with gold.

But in the case of simple crown cavities, in those teeth in which the pulps are alive and healthy, I cannot conceive of one that cannot be as successfully filled with amalgam, as with gold.

The reasons for preferring amalgam to gold in the cases referred to are sufficient. The ability of the amalgam to preserve the tooth as well as gold being admitted, what advantages have the combination of baser metals over the nobler? I answer, three of the most powerful ones we can conceive of. It requires less time, less nervous exhaustion, and less money. All of these considerations particularly interest the patient. It will never do to forget that we owe our patients something besides our mere professional services, for to them is due sympathy, consideration and *economy*.

One thing to which I wish particularly to direct your attention concerning the abuse of gold, is the building of crowns upon the devitalized remains of what was once a tooth. This is an operation that should be strongly denounced.

A tooth that comes to us devitalized, or which we devitalize, is always a doubtful one, for what is the removal of a pulp from a tooth but a matter of guess-work? On several occasions I have been quite disgusted by the arrogance and positiveness with which some operators assert that they always remove *all* the pulp. If, after repeated attempts with the finest broach, no more pulp can be brought away, we lay the flattering unction to our soul that it must be because there is no more to bring away. Most decidedly a matter of inference! How often do we leave enough of this nerve filament behind to engender days of agony for our patients, and no end of trouble for ourselves!

Statistics are not wanted on the subject, and you would not care to hear them.

I do not think there is a gentleman in this room who will positively assert that he *knows* when he has removed all the pulp from an upper or lower molar. Therefore, this being a doubtful operation, and one liable to give both patient and operator annoyance in the future, such a tooth should not have a large and expensive gold plug put in it.

Any devitalized tooth requiring two books of gold to fill it, or rather to build it into the semblance of a tooth, is not fit to fill; it is a case for an artificial substitute, and there is nothing so

thoroughly indicated as a good tooth crown, either of gold or porcelain, and of which we have a great variety.

For the anterior teeth, where not more than a third or a quarter of the crown is left, either latitudinally or longitudinally, cut it off and attach a porcelain crown, and you will have a result that you can never hope to attain with a gold plug.

What have we to expect after having built a gold crown on a devitalized tooth? For the worst an abscess, and all the misery that entails, with probable loss of the tooth; for the best a slow, low grade of chronic inflammation, giving the patient no peace, while for months he is induced to tolerate the slow torture, in the hope that it will "wear away," a phrase behind which we are too prone to dodge.

There are exceptions to this rule of devitalized teeth being comfortable after having crowns built on them, but they only prove the law. Naturally, the question presents itself, in what way would a porcelain or hollow gold crown be superior to a devitalized tooth?

It would possess the following advantages:—Probably not more than one-eighth or one-fourth the time would be occupied in attaching the crown to the root or roots, that it would take to build one of gold; very much less pain and nervous exhaustion to the patient would be the consequence, and decidedly very much less money to pay for it would be demanded. Again, if the root or roots ever gave any after trouble the crown could be easily removed, the tooth subjected anew to treatment, and the crown replaced. Of course this could not be done with a crown that had been built up of gold. You will please observe that the reasons advanced for using the artificial crown on devitalized teeth, are identical with those that I gave for using amalgam back of the bicuspid, with the exception of the last one referring to the matter of treatment.

In connection with this matter of building crowns on devitalized teeth, allow me to say that it has always been a mystery how students of dental pathology could be so inconsistent as to carefully and skillfully treat a case of alveolar abscess for two

or three months or longer, and having finally got the root or roots into something like a normal condition, to pound two or more books of gold on those lately convalescing roots, occupying from four to six hours in the performance of the operation, thereby inducing the conditions which they have had so much difficulty in quelling, only to erect a golden monument to their inconsistency and lack of judgment.

Reports of Society Meetings.

CONNECTICUT VALLEY DENTAL SOCIETY.

(Continued from December Number.)

The evening session was devoted to a paper by Dr. J. L. Williams, of New Haven, Connecticut, upon "Embryology, with special reference to the development of teeth," illustrated by stereopticon. The paper was a fine presentation of the subject, being a full and complete statement of the most recent views, the result of careful investigation. The photographs, projected upon the screen were taken from Camera Lucida drawings.

Dr. Atkinson—I regard the presentment just made by Dr. Williams as the most concise and clear statement of the subject that I have ever been favored with, and I now render him my personal thanks.

Ever since the segmentation process of incubative evolution has been known, it has been regarded as a forestep in the production of tissues and their combination into organs and systems. Segmentation, as a forestep to organization, involves the necessity of other foresteps as cancellations of like predecessors, as chaotifications of the separate processes without losing the increment of the power, the limitations of which constitute the lay out or type of body to be formed according to the seriations in order, class, genera, species and variety, demanded by the germ under investigation. The germ is an impregnated or vivified egg. The egg is femenoid semen, and is vivified by admixture with another primate known as zoon,

or spermatozoon—masculoid semen. The molecular metamorphosis through which egg and spermatozoon become capable of flowing together or mutually interpenetrating the other to constitute a germ capsule of evolution into a body like the parents from which it sprang, is too occult and involved to be entered upon with any hope of full apprehension and appreciation in the time and with the means at command. Let us say, however, that *ripening* is the term used by physiologists to indicate the concussion or churning together of the elements of the semens to awaken and engage definite measures of atomic energies, held in molecular grasp of bonds of affinity to constitute the feminoid and masculoid semens as conjointly and alternately quiescent reservoirs of plus and minus energy, ready to be awakened to form a germ upon being brought within the sphere of each other's influence.

Ovum and spermatozoon are definable and provable bodies with very small knowledge of natural history. But germs are difficult of identification in the quiescent condition, and infinitely varied in appearance during incubation or hatching. The three embryonal or germinal layers or sheets constitute important foresteps in incubative procession. Enfoldings and duplications of the epiblast or external sheet give the lay out of skin and body walls, or "somatopleure." Duplications of the hypoblast give the limit of the visceral walls, or "splanknopleure." The forward fold or invagination of the hypoblast forms the fore-gut, and the hind fold the hind-gut, and the œsophagus, stomach, duodenum, jejunum, ilium, colon and rectum are further differentiations of this layer.

I am rapidly getting over being offended by the mistakes made by earnest and honest naturalists. Naturalists as a class take the palm for dead earnestness to get at the truth in the fields they explore. Even a misinterpretation of any body or process may prove useful as a means of demanding review of the subject. Time would fail us were we to attempt to enumerate the so-called "demonstrations made before learned assemblages of the limits of possibility," that proved upon due examination to be but foresteps in negation of the veritable facts in science which prove the philosophy upon which SCIENCE is erected! When such great names as those of Rashkow, Goodsir,

Huxley and such ilk, fall into misinterpretations of embryology, may we not forgive Magitot, Dean and ourselves for palpable blunders? Palpable to those better endowed and better equipped for the investigations than ourselves.

The interior of the mouth and the anus are the points of punctures of the foldings of the epiblast and the hypoblast, between which the mesoblast or source of somites takes its rise; the division of mouth and pharynx and of the anal sphincters are the points where the epi and hypoblasts flow into each other; the epiblast providing the lining of the mouth and the orifice of the anus, and the hypoblast supplying the embryonic corpuscles from which the mucous membrane of the pharynx and the termination of the rectum inside of the sphincters is formed. Embryology has not been sufficiently elaborated by patient and voluminous study to clear up all the appearances that mark the production of provisional and permanent tissues of the body. The great step in advance in embryological changes is the discovery by Heitzmann, of the tissual character of protoplasm, as opposed to the old interpretation of homogeneity of character. He says: "Protoplasm is a tissue made up of granules and strings, and a non-living watery fluid." I agree that protoplasm is an organized tissue, but not of non-living and living elements. I regard the fluid portion as of molecular constitution, and therefore a veritable living mass, whether we can demonstrate its structure to sight or not. The granules and strings are but the functions of the walls of the little sacs which hold the more fluid or watery part of the mass of protoplasm. *Amœba*, and all protoplasmic masses show this to sight by proper management. In microscopical examination of very small bodies, oblique light sometimes reveals structure that is invisible or obscure in the direct ray. Where objects are difficult to resolve we may gain much help in interpretation of their intimate structure by taking analogous specimens, the character of which is known to us. This is my justification for advising the use of soap-suds on the slide, to simulate or personate, for the purpose, an amoeba or mass of protoplasm. We know that air is the interior of the bubbles, and a thin structure of suds constitutes the periphery or sac which holds the air (an elastic gaseous body) in constraint. The similarity of

appearance of this known structure to protoplasm, indicates the sacular character in the mass under dispute. The mind, imbued with a dominating desire to know the whole truth, whether it agrees with preconceptions or not, is in better state to get it than those who decide before what "ought to be."

Adjourned to half-past nine A. M. Thursday.

MORNING SESSION—SECOND DAY.

The Society met at half-past nine o'clock, Section Three being called. A paper entitled "Aconite" was read by Dr. George A. Maxfield, of Holyoke. It was voted at its conclusion to defer discussion, and Section Four was called, when a paper entitled "Tooth Crowning" was read by Dr. E. Parmly Brown.

Dr. L. D. Shepard was impressed by the paper charts and models exhibited, that there was something good in this thin platinum band. It is a nice thing to conform closely to the roots. He had had some experience in crown-setting, and the only criticism he could offer upon Dr. Brown's method would be that a large assortment of crowns would have to be made and kept on hand as a stock, to select the suitable crown and band from for each individual case. A nicely fitting band is the first essential, and is in reality the part of the work where the greatest accuracy is necessary. Failures of this kind of work are chiefly due to ill-fitting bands.

Dr. Brown—expressed pleasure at the small amount of criticism. The band of the crown is such that it can be trimmed to fit the root of any tooth. The flange on many roots should be removed before fitting the band.

Dr. Shepard—Thought that one statement of Dr. Brown's should be called in question: "that he had never set a crown with cement entire, and did not believe it could be successfully done"; he (Dr. Shepard) had set one hundred and fifty crowns, out of which number there were but two failures; in one case the crown broke, in the other the band was imperfectly fitted to the roots of a molar, and he simply used a cement to set the crowns. He believed that the failure in this class of work was owing largely to the miserable manner in which the neck of the root was fitted. Had recently

removed several Richmond crowns, the bands of which were much too large to fit the roots.

Dr. Williams—Thought that Dr. Shepard stated a great truth when he said that a large per cent of the failures in crown work were due to poorly fitting bands. He has been engaged for a year past almost exclusively upon crown work, and so far as the Richmond process was concerned, when properly performed, the fit was perfect. Had seen two crowns removed from roots of teeth to attach some of better and more uniform color, in the case of Dr. Richmond, and the crowns had to be literally cut to pieces.

Dr. Brown—In reply to an inquiry concerning license to use the crown said that he would issue a license to any one man in a given locality who would stipulate and agree to not advertise it in any form or shape. He should not have his crown hawked into the public prints so long as he owned the patent, and he did not propose to sell it either.

The thanks of the society were unanimously voted Dr. Brown, for presenting his paper, charts, and models.

Dr. Shepard—Wished to exhibit some surgical instruments. Would first show a pair of guillotine forceps designed by Mr. Woodhouse, and manufactured by C. Ash & Sons. Mr. Woodhouse is the originator of this instrument, and not Dr. Frank Abbott of New York, as we are led to infer by a recent notice in the *INDEPENDENT PRACTITIONER*. The S. S. White Dental Manufacturing Company have the patterns, and are to manufacture them. Also a pair of forceps for drawing forward the tongue during anesthesia, no wounding of the organ being possible; the instrument locking upon closure. Also a new form of syringe, clamp forceps, and clamp.

A paper was read by Dr. Geo. L. Parmele, of Hartford, Conn., "Concerning Records."

Dr. Atkinson—Wished to speak of Dr. Maxfield's paper upon Aconite. He thought it one of the finest papers and the best upon the subject he had ever heard. There was timidity and caution shown by the writer. The statement concerning Louis Jack, attributing to him the saying that aconite placed outside the gum will

penetrate the tissues to the dental pulp, he thought was a mere assertion. It certainly should not be accepted until mentally digested.

Upon invitation, Dr. Shepard detailed his method of crowning teeth. The plate from which his bands are cut are usually \$2.50 gold pieces rolled down to thirty-one gauge. He used asbestos, ground fine as flour, with plaster, for investment of his work for soldering.

The next annual meeting will be its twenty-first, and it was voted to celebrate the occasion by an historical address, which Dr. Shepard was invited by the society to prepare and present. It was voted that a special invitation be extended to all "charter" members living, to be present at that meeting.

A communication from Dr. Jas. A. Bazin of Montreal, was read, relating to the meeting of the British Science Association at Montreal next August, and expressive of a desire for dentists and various dental societies to unite in that meeting. The communication was tabled for consideration at the June meeting.

Dr. C. T. Terry of Milan, Italy, was elected to honorary membership.

The officers elect were then installed.

It was voted to grant the president more time in the matter of appointing committees.

Adjourned subject to the call of the executive committee.

The following committees have since been appointed :

EXECUTIVE COMMITTEE.

Dr. Geo. A. Maxfeld, Holyoke, Mass.

Dr. F. W. Williams, Greenfield, Mass.

Dr. A. F. Davenport, No. Adams, Mass.

SECTION COMMITTEES.

1. Dr. E. S. Niles, Boston, Mass.

2. Dr. E. O. Wilbur, Thompsonville, Conn.

3. Dr. C. Fones, Bridgeport, Conn.

4. Dr. L. D. Shepard, Boston, Mass.

5. Dr. E. A. Stebbins, Shelburne Falls.

Reported by A. M. ROSS.

Correspondence.

A WARNING TO THE PROFESSION.

125 STATE STREET, CHICAGO, ILL.,
December 15th, 1883.

Editor Independent Practitioner:

Near evening of March 11th, 1882, while standing at the Morrison dental chair, pain and swelling of the right leg from knee to foot first began.

In a few hours the pain was excruciating and the least touch of the knee unbearable.

My usual physician was in Europe, and a medical Professor of good reputation came in his stead. He thought the trouble was inflammatory rheumatism, and for that instituted treatment. After a couple of weeks I was able to be up, and the soreness and swelling was so far modified that I began professional work, sitting upon a dental stool. As the enlargement of the knee diminished, a small swelling was apparent on the upper part of the tibia, near the joint.

My own doctor returning, he assumed the case, calling the ailment rheumatism. There was little change in the soreness and lameness of the knee up to August. I was then advised to spend a long vacation at Avon Springs, New York, taking hot sulphur baths, which it was hoped would be beneficial. I returned about the middle of September, no better, but with a slight increase of the tibial swelling.

Early in October I applied to a Professor of Surgery for his opinion of the case. "This swelling endangers the joint," said he. "The enlargement of the joint is probably secondary, and there is an effusion of synovial fluid about it. We will keep up the rheumatic treatment, and watch the swelling."

November 29th, it seemed to contain fluid and was aspirated, then carbolized, and shut up to heal by first intention. A week later it was again full, and was treated in the same way. At the end of the third week it was opened and a drainage tube inserted. The contents of the tumor each time were thick blood and a few flocks

of matter. It was treated with carbolic solution by syringing twice a day. A ten pound weight was now attached to the foot to separate the joint, and traction continued three weeks.

February 26th, showing little change after nearly three months, I was put under gas, and kept under it, while examination was made to find the necrosed bone.

Again, April 2nd, ether was administered and a thorough exploration made along the front of the tibia for several inches, and down underneath to promixity of the large artery and nerve. These attempts were fruitless; everywhere the bone was well covered with periosteum. The joint from the first inception of disease was partially stiff, and entirely so at times. The soreness rapidly increased after these operations, until the least jar or movement of the knee produced intensely sharp pain.

A second surgeon was now called for advice. He thought an operation desirable to make a stiff joint, and keep the limb. A third surgeon said it was too late for that operation, and advised that the limb be soon amputated. My own surgeon reluctantly concurred with this opinion, and took it off, June 14th, 1883.

The suffering of the first week was bad enough, but the agony of neuralgic pain for over three weeks following was terrific. The best soporifics were literally worn out, securing scarcely two hours rest out of the twenty-four. Tight bandaging and medicines were useless. Night and day I held the stump with both hands to prevent the fearful throes.

The lower end of the femur was found to be slightly softened. The cartilage was partly destroyed. The swelling about the knee was filled with pus, and synovial fluid. Between the tibia and fibula, underneath the knee, was a large sac of pus, which probably filtered down from the joint, and slowly escaped by the tibial swelling.

After calling the aid of a surgeon, I first recalled the fact that about noon of the same day the painful troubles began, I hit the knee against the end of the crank of the dental chair, producing a keen pain which lasted some seconds. I had often hurt it in the same way, but less severely. A year or more previously, I had received a severe blow on the limb, at or near the joint, from a

partial revolution of the crank of the chair, the dog not catching firmly in the cog-wheel. I had taxed the knee for years with the entire running of Green's, then White's, dental engines, often with a feeling of discomfort which it was supposed was rheumatic.

Dr. J. F. Marriner of Ottawa, Ill., says the running of the engine has seriously affected his knee. Dr. W. O. Kulp, of Davenport, Iowa, was laid up two weeks from inflammation of the synovial membrane, caused by use of the engine. It was reduced by counter irritation.

A water motor, electricity, or an assistant, should run the engine. For the dentist to do it, is to expend nerve force or vitality which should be kept as future reserve power. The body cannot be overworked in brain or limb with impunity. It must have vacations for rest and recuperation, or like machinery for oiling and repairs. We should heed all warnings of its weakness.

Small injuries of the knee or its surrounding parts, may result in the loss of the limb. We cannot blame others for our own stupidity or carelessness. We well know that the true diagnosis of disease is sometimes very difficult, and with humility admit that often in mental darkness grope all they who attempt to repair any part of God's image.

In retrospect, I now consider that the many thumps, and the running of lathe and engine for over twenty years were preparatory aids, while the immediate cause of the primal inflammation of the knee was the severe blow upon the crank, given a few hours before twinging pain began.

Very truly yours,

A. W. FREEMAN.

PRE-HISTORIC TEETH.

NO. 2 HAUSVOIGTEL-PLATZ,

BERLIN, December 1st, 1883.

Editor Independent Practitioner :

Some days ago I received the October number of the INDEPENDENT PRACTITIONER, containing your communication entitled: "An

examination of the condition of the teeth of certain pre-historic American races." I need not say that I was very much interested in the facts therein brought to light, more particularly because it is a subject to which I have myself given considerable attention. Not quite a year ago I examined carefully all the skulls contained in the anatomical museum of the University of Berlin, about nine hundred in number, and made a record for each case of the number of teeth present, the number of cavities of decay, their location and extent, the amount of tartar, evidences of alveolar abscess, pyorrhœa alveolaris, etc., etc. In this collection are to be found skulls from all parts of the earth and from all ages, and a study of them permits of only one conclusion, viz.: wherever man is found, there caries of the teeth and its concomitant evils will be found also.

I would not say, nor do you say, that pre-historic races were, or that modern uncivilized races are as much tormented with this disease as the modern civilized races. I should be inclined to think not; but that caries was present in its worst form, of that there can be no doubt.

There is *one* lesion of the teeth which we meet with in practice almost daily, that I have not found in my examinations,—in the whole anatomical museum there is not a single sure case of that form of erosion which is here called the "wedge-shaped defect." I have seen it somewhere stated that barbarous races also suffer from this evil; that may be so, but no such cases found their way into the Berlin museum. There are several large collections here, which I hope to be able to examine as soon as time allows, and may then give you in proper form the results of my examination.

At present let me refer to a very few cases.

1. Skull from an old burial place of the Huns, near Kertsch; sixteen teeth in position. The right superior first molar, right inferior first molar, and right inferior second bicuspid, all contained compound approximal cavities; there were traces of caries on the grinding surface of all the molars.

2. Skull from same grave; eleven teeth in position; one compound cavity, one exposure of pulp, and all the left upper molars gone, and alveolus obliterated.

3. Skull dug out of the ground in Sicily, very old, exact date uncertain; six teeth in position, all containing compound cavities on the grinding surface.

4. Mummy; thirty-two teeth; two simple and two compound buccal cavities, and one leading to exposure of pulp; right superior second molar and left superior first bicuspid complete ruins.

5. Ancient skull from a grave near Cairo; seventeen teeth. Upper molars all lost during life, except the left first, which was decayed to the margin of the gum. The left superior second bicuspid was in the same condition, both extensively abscessed, the whole external alveolar wall being gone completely, exposing the roots of both teeth.

6. Skull of a child from ancient Peru; one of the first molars a complete ruin; others had compound cavities on the grinding surface. Three of the temporary molars contained compound approximal cavities, and one was abscessed.

7. Skull of a Guarani (Indian race in Paraguay); thirty-two teeth. This denture would almost rival anything that could be shown today in Berlin or New York. There were no less than twenty-three large cavities, and three teeth decayed to the gum.

Of course the above are some of the worst cases, and there were all gradations from those named down to perfect dentures. There were also a number of cases where the teeth had all been lost during life, also abundant evidences of pyorrhœa alveolaris, and large accumulations of tartar. By the way, I did not fail in any case examined with reference to this point to find the familiar micro-organisms in the tartar after decalcification.

One denture, that of a Javanese, presented an appearance as "natural as life"; the left superior first bicuspid stood inside of the arch, forming an equilateral triangle with the cuspid and second bicuspid; all three teeth were extensively decayed on the surface looking toward the center of the triangle.

In looking over the tabulated results obtained from the examination of these nine hundred specimens, I am able to draw no other conclusion than this: whatever deleterious effects the vices of civilization may have had upon the structure of the teeth, however much

their power to resist the agents of decay may thereby have been reduced, the origin of the disease *caries dentium* itself, must be sought for at a time and place where neither modern nor civilizing influences had any existence.

Very truly yours,

W. D. MILLER.

Editor Independent Practitioner :

In the November issue of your journal, (page 622) is an illustration and description of "Abbott's Scissors," "an instrument devised by Prof. Frank Abbott, for separating the gum on erupting teeth, more especially the third molars, etc."

I bought in London, last summer, a similar instrument, which is made in two sizes and with different curves to adapt it for both upper and lower jaws. I exhibited these instruments at the meeting at Providence, October 7, of the New England Dental Society. Prof. Garretson was present, and was enthusiastic in their praise, declaring that they supplied a want which he had long felt when attempting to remove the opuculum over an erupting tooth. These instruments have been in use in England for two years, and have been advertised in Ash's Catalogue (edition July, 1882), and published to the profession in an editorial in the *British Journal of Dental Science*. You will find in the issue for April 1st, 1882, (page 332) the following :

"GUM GUILLOTINE FORCEPS.

"Messrs. C. Ash & Sons have manufactured a cleverly conceived instrument, the design of Mr. Woodhouse, with which the superincumbent gum over an erupting wisdom tooth can be removed by an instantaneous operation. It resembles a straight, thin, long-bladed pair of forceps, the one blade of which terminates in a thin, flat, shovel-shaped end, somewhat approaching in size the masticating surface of a wisdom tooth ; the opposing blade forms an irregular shaped ring, with a sharp edge, into which the flat blade accurately fits on closing the forceps. In using it an incision has to be made through the gum with a lancet along the anterior margin of the wisdom tooth ; the thin, flat blade of the guillotine

forceps can then be inserted and passed over the whole surface of the tooth. With one pinch of the handles the whole surface of the tooth will be exposed, and the piece of gum brought away in the instrument with as much dexterity as a railway porter clips a ticket, and, indeed, much after the same fashion."

The instruments are beautifully made and work to a charm—the only wonder is that such an instrument has not been devised before. The similarity between those of Prof. Abbott and Mr. Woodhouse is very striking, in fact a description of either would answer for the other. As it is a rule, I think, that credit for an invention or discovery is given to him who first publishes it, unless an account of "Abbott's Scissors" has been published before that in your last issue, this very beautiful and useful instrument should be known as Mr. Woodhouse's, rather than Prof. Abbott's.

Of course any one who knows Dr. Abbott would not for a moment suspect him of introducing as original an instrument the idea of which he had borrowed, especially when it had been so fully and clearly described in so widely circulated and prominent a magazine as the *British Journal*. It is only another of the many illustrations of the independent invention by two or more of the same machine.

It will be good news to the profession that Mr. Woodhouse's Gum Guillotine Forceps will soon be on sale here, as the agent of the S. S. White Dental Manufacturing Co., who was at the meeting in Providence, secured the loan of one of my instruments to take to Philadelphia as a copy.

I cannot too strongly recommend the instrument to every dentist, and it is only because I consider the invention so meritorious that I make the effort to have the credit rendered to whom it is due.

Very truly yours,

L. D. SHEPARD, D. M. D.

No. 900 SPRUCE STREET,

PHILADELPHIA, December 15th, 1883.

Editor Independent Practitioner:

I have paid two visits to the Museum of the Academy of Natural Sciences in this city, for the purpose of examining some of the

skulls there, to see if they bore evidence of dental disease. Many of them are in a condition to make them of little value from a dental standpoint, the teeth having been lost, and the alveolar process so broken that nothing can be learned from them. My examination of the rest was necessarily but cursory, but I hope at some day to make it more thorough, and then the INDEPENDENT PRACTITIONER shall have the results.

A day or two since I gave the case containing the Peruvian skulls especial attention, and a slight examination revealed extensive loss of teeth, irregularity, evidences of alveolar abscess, caries in various locations, and deposits of salivary calculus, such as we see at the present day. Some dentures were apparently good; in others there was a loss of, or changed condition of the process, that may have been the result of disease, or may have been caused after death by the soil in which they were buried, or climatic influence, or by time. I rather think it posthumous. I was surprised to find but few North American Indians with perfect dentures, nearly all as they lay on the shelves exhibiting evidence of some form of dental defect. In conclusion, the examination, although quite cursory, was conclusive in one respect, and that is in showing the importance of giving the subject far more attention than it has yet received. Not only should the skulls be carefully examined, but it is equally important that the history of the races to which they belong should be carefully studied, their origin, habits, diet, manner of life, etc., noted and compared, so as to see what influence these have had upon the dentures they have left behind them.

Very respectfully,

WM. H. TRUEMAN, D. D. S.

Editorial.

THE MISSOURI DENTAL JOURNAL.

We regret exceedingly to learn that the publication of this old and valuable journal has been suspended. It has had a long and honorable record. For fifteen years it has been active in the spread

of dental intelligence, and in its pages have appeared very many articles which have secured a permanent place in our literature. It contains the record of some of the most valuable life-work of Eames, and Chase, and Spalding, and others, and it is a reflection upon western dentistry that it should lack the support necessary to its existence.

A year ago it was removed from St. Louis to Kansas City, and we noted with pleasure that the new editor and his associates seemed to breathe a new life into it, and we hoped that its merits would have been better appreciated. But the publisher was not a practising dentist, and viewed dental interests from a mercantile standpoint, declining to sacrifice himself for any professional good, and hence the old journal has succumbed. Dr. Pearson, assisted by Drs. Patterson and Hungerford, has done good work as a journalist, although he has struggled in the face of many discouragements. We hope that the pens of neither of the editors will be allowed to lie fallow, but that they will still continue active in a field in which they have shown that they can so successfully labor.

There is a lesson to the profession in this death of one of our too few respectable journals. If we are to have a profession at all, it must have a literature. We have too many illiterate men among us, too few who are faithful supporters of the best interests of dentistry, to allow professional journalism to be pecuniarily profitable. The work that is done in this department must be mainly a labor of love. Yet no intelligent man will deny that the journals add greatly to the dignity of dentistry, and are among the most potent influences for the elevation of the professional standard. Without schools and journals our calling would sink to the level of mere handicrafture. Every practicing dentist owes to the journals much of the respect which his avocation receives from the world, and there is not one who is not pecuniarily and directly benefited by the labors of those who have for years toiled unselfishly and without pay, for the good of the body of men with whom they have cast their lot. Thousands of dentists have benefited by these labors, who have either not realized what others were trying to do for them, or seeing it were content to reap the harvests and ignore

those who had assisted at the planting. Many a man has, like the lamented McQuillen, toiled for others all his life, only to die with the debt unacknowledged at last. There are so many who take only the bread-and-butter view of their calling, and who, like the maelstrom suck up everything within their reach, rendering nothing back again. They have nothing but sneers for him who devotes his energies to other's good, though they are ready enough to receive all he has to give. If dentistry is to reach its highest capabilities its literature must be supported, and practitioners must realize that they owe an honest debt to those who are working for their good.

We did not set out to write a Jeremiad, though the text was pregnant with useful lessons. Dental journalism has its bright as well as its dark side, and there are many men whose appreciation makes an otherwise oppressive labor, light. The experience of the publishers of this journal is too brief for them to obtrude their own personality into the discussion of such a subject, and yet they could a tale unfold of cheering words, of proffered assistance, of kindly recognition, such as warms the cockles of one's heart, and demonstrates that there is such a thing as brotherhood among men, and unselfish appreciation of what others are trying hard to accomplish. It was the record of such in our December number, that made the editor of another struggling journal cry out in a private letter, "Oh, for a thousand Darbys."

IDENTAL SOCIETIES.

That the wonderful advance of modern dental science is in a great measure due to the organization of dental societies throughout the world, no one will dispute. There can be but little professional progress without organized effort; the growth of dentistry as a distinct profession dates from the institution of dental societies, and the standing of the practising dentists in any locality may be accurately gauged by a perusal of the proceedings of their local society. The time is within the memory of many now in active life, when dentists locked their laboratories against the prying eyes of their neighbors, and closely guarded the information

which was the result of their experience and study. That day of exclusiveness and unprofessional jealousy has happily passed away, and now every one worthy the name of a professional man hastens to give to his brethren the benefit of any discoveries which he may make, well knowing that it is only by giving freely that he can as freely receive, and that everything which tends to elevate his calling raises himself with it.

Dental societies are supposed to be instituted for the spread of professional information. Their mission is general, and the results of their sessions, if they be true to their ostensible object, belong to the profession at large. Any locking up of the papers and discussions, any selfish retention of them for ulterior purposes, is a violation of that broad code of ethics which demands that general professional information shall be made accessible to any one who seeks it. The dental journals are the recognized medium of communication for the diffusion of this very knowledge, and any society, therefore, that forbids the publication of its proceedings in respectable journals, is in spirit returning to the old narrow policy of jealously guarding the avenues of learning, lest haply some neighbor should gain a little surreptitious knowledge. If a valuable paper be presented, it belongs of right, not to the little favored clique who listened to its reading; not to the comparatively small body of men that makes up the membership of the society before which the essayist may read it, but to the profession at large. Science knows no boundary lines, no dividing walls, no society rules, no narrow personalism, but it is as broad as the world, as wide as the universe. We live in an age that cannot await the slow process of the publication of occasional volumes of transactions. We are making such rapid progress that any professional information demands instant spread, that it may assist those who are making investigations in the same field, and if it be delayed for but a short time, the world has passed the point when it would be valuable, and it becomes stale, flat, and unprofitable. We are nearing the point when a weekly dental journal will be demanded. General medicine has long since passed that period, and daily medical journals have been established. This is not an era of annuals, and

labored and elaborate tomes have given place to brief and pithy daily, weekly, or at most monthly paragraphs.

The society that locks up its valuable information until in its own good time it shall choose to publish a volume of transactions is robbing its neighbors, and refusing that free interchange of ideas which marks every progressive association, and in reality belongs to the old era of closed laboratories, secret formulas, and exclusiveness. Volumes of transactions are not published for the world, but are the property of members. As a permanent record of what has been accomplished they are valuable, but for the purpose of spreading professional information they are comparatively useless.

We have been led to these remarks through the difficulty which we have experienced in obtaining reports of societies whose discussions were of value to the profession. When we have employed a reporter for the purpose of giving to our readers an account of the doings of some professional body, his requests for information and facilities for obtaining a report have been met by showing him some eighteenth century by-law, which forbids the publication of the proceedings until they have first appeared in the volume of transactions that appears at intervals of one, two, or three years. To our apprehension this is but a poor way of compassing the ends for which such organizations are established, and we cannot but urge that all dental societies become as liberal collectively, as most of their members are individually. If dental journals are to fulfill their true mission and be of the greatest benefit to the profession, an active co-operation is demanded by them of all those who love their calling. If information is to be given by them it must first be received, for editors are not ubiquitous, and cannot get items by inspiration. Every dental society then, should open its doors, and either make its papers and proceedings public property for every recognized journal, or select some one of them as its medium of communication with the rest of the profession, and furnish it with a fair report of all that it has of interest for others. If however, any man or society desires to be left out in the gathering and distribution of professional knowledge, there is no law, save that of the common code of ethics, that will force him or them to

fall into line with the rest of the profession, though they are liable to the charge of deliberately courting the obscurity to which such an exclusive policy must surely doom them.

ANCIENT PERUVIANS.

The editor of *Zahntechnische Reform*, in a kindly notice of the discussion concerning the decay found in pre-historic teeth, calls our attention to the fact that the ancient Peruvians were not without a kind of civilization of their own. Quite true, but the question at issue is whether dental caries is due to the vices of a *modern* civilization ; whether the type of oral diseases has been materially changed by altered habits of life, by the present methods of the preparation of food, by sanitary condition, and sedentary pursuits. We have no expert testimony that any species of what might be denominated dentistry was practiced among that people. Casual observers are liable to confound post-mortem decorations of the dead, the placing of golden ornaments in the mouth, the gilding of the teeth, etc., for prosthetic operations performed during life. The ancient Peruvians spent much labor in the preparation of their dead for burial, and the mummied remains are in a very good state of preservation to-day.

"INDEX MEDICUS."

It is not dental journals alone that sometimes suffer from a lack of support. The complaint is chronic among medical publications, and it would sometimes seem that the more meritorious they are the more they are allowed to languish. The publisher of that very important work, *Index Medicus*, sends out an appeal to the profession, and an intimation that unless it be better supported its publication must be suspended. Are there not some readers of this journal who will pay ten dollars per year before they will allow such a misfortune? Will not some society send in a subscription for the benefit of all its members?

" ABBOTT'S SCISSORS."

Dr. Shepard, in a letter published in this number, points out the fact, one which had certainly escaped our observation, that the gum scissors illustrated in the November number have been in use in England for some time. Dr. Abbott says he devised the implement at the requisition of a prominent New York surgeon, and without any knowledge that such a thing existed. No one will accuse him of such a stupid and easily discoverable thing as the pirating of the invention. Even were he lacking in principle, he is certainly not devoid of sense. But if we are rightly informed the instrument is not even of original English invention. We have been assured that a description and illustration of a device, very like both Woodhouse's and Abbott's, was published in the *Missouri Journal* a number of years ago. We have not the complete files at hand to verify or disprove the assertion.

AUGUST NUMBER WANTED.

In consequence of the unexpected call for back numbers of this journal, the edition for August, 1883, has been exhausted, and we have not sufficient for our files. Many of our readers must have copies which they do not care to preserve. If they will send them to the editor they will confer a great favor upon him, and a reasonable sum will be paid for them, or copies of other numbers will be sent in exchange.

DEFERRED.

The first part of Dr. Miller's promised article has been received, but as it is impossible to get the necessary cuts made in season, its publication is necessarily delayed until the February number.

Current News and Opinion.

GERMAN GRADUATES.

During 1881-82, twenty-two dentists graduated in Prussia, according to official statistics.

UNIVERSITY OF CALIFORNIA.

The second annual commencement exercises of the Dental Department of the University of California, were held with those of the Medical Department at the Baldwin Theatre, San Francisco, Cal., Tuesday evening, November 13, 1883.

The literary exercises were as follows :

Address on behalf of the Medical Department, by Prof. R. B. Kane, M. D., M. R. C. S. I.

Address on behalf of the Dental Department, by Prof. C. S. Goddard, A. M., D. D. S.

Valedictory on behalf of the Graduating Class of the Dental Department, by W. E. Price.

Conferring degrees of Doctor of Medicine, by President of University, W. I. Reid, A. M.

Conferring of degrees of Doctor of Dental Surgery, by President of University, W. I. Reid, A. M.

Administering the Hippocratic Oath to the graduates of the Medical Department, by Prof. R. Beverly Cole, A. M., M. D., M. R. C. S., England.

Address on behalf of the Alumni Association of the Dental Department, by G. W. Sichel, M. D., D. D. S.

The following candidates received the degree of Doctor of Dental Surgery :—John Nelson Blood, Charles Britton, Maria A. Burch, Edwin Overton Cochrane, Russell Hopkins Cool, Milton Francis Gabbs, William Edmund Price.

The number of matriculants for the session was twenty-six.

The next session will begin February 1, 1884, and continue till the last of October, 1884.

S. W. DENNIS, M. D.,

Dean of the Faculty.

DENTAL LEGISLATION.

The first laws ever passed for the regulation of the practice of dentistry originated in France, and as a consequence, French dentists were considered superior to all others during a whole century,

and all dental literature at that time was of French origin. In 1746, Fanchard published his great work on the theory and practice of Dentistry, which was the accepted standard for many years after. Many others followed during the second half of the eighteenth century. To-day, France is the only civilized country without laws relating to Dentistry, and within its boundary any individual who likes, can call himself "Dentist."—*Centralblatt fuer Zahnheilkunde.*

NEW YORK ODONTOLOGICAL SOCIETY.

At the annual meeting, held during the past month, the following officers were elected for the ensuing year :

President—Wm. Jarvie, Jr.

Vice President—Wm. Carr.

Recording Secretary—E. T. Payne.

Corresponding Secretary—J. Morgan Howe.

Treasurer—Charles Miller.

Librarian—W. A. Bronson.

Curator—Jas. Goodwillie.

Executive Committee—C. A. Woodward, J. W. Clowes, W. Carr.

The meetings are held on the third Tuesday of each month.

PLASTER MODELS.

Models of rare cases that it is desirable to preserve, should be made of the best plaster-of-paris, mixed with a concentrated solution of borax. They should be dried with care, and then put in a bath of parafine colored with dragons blood. The model thus prepared has the appearance of handsome Italian marble, and it may be cleaned and washed without injury. To increase the translucency more borax may be used.

To make a very hard model the plaster should be mixed with lime water, but such casts are not suitable for vulcanizing.

To increase the hardness of an already prepared cast it should be boiled in a strong solution of alum.

POPULAR SCIENCE NEWS.

This excellent monthly, formerly *The Boston Journal of Chemistry*, has long been known as one of the very best of its class. Its every number is full of matter that is of the greatest interest to every professional man. Because of the amount of original matter that is offered to us, we are obliged to drop the Popular Science department of this Journal. To those who were interested in it, and who desire information upon the current scientific questions of the day, we cannot do a greater favor than to recommend *Popular Science News*. It is but One Dollar per year. Address it at Boston.

GOOD TEETH AND GOOD INTELLECT.

The recent discussion in the French medical journals on the relation of the teeth to the brain, and their conclusions, are of importance to all brain-workers. Dr. Championniere recommends that parents and guardians should pay close attention to the teeth of those under their care, and should, when any signs of premature decay are noticeable, give their charges a holiday.—*Med. and Surg. Reporter*.

DECLINED WITH THANKS.

An offer has lately been made to the municipal government at Paris, to perform the dental operations in the city hospitals free of charge. The government politely refused the offer, with the remark that "the privileges of a democratic community are to pay everybody for the work which he does."

RESIGNED.

We are sorry to learn that Dr. Cravens has resigned his position as assistant upon *The Ohio Journal*. His "Varieties" gave promise of becoming a favorite department, but he retires before exhibiting to the profession all of which he was capable.

TRACHEOTOMY FOR THE EXTRACTION OF A TOOTH FROM
THE LEFT BRONCHUS.

Dr. Robert F. Weir reports in the *New York Medical Journal*, the case of a young woman who was having a tooth extracted under ether, when it slipped from the forceps and was drawn into the left bronchus. Its location could be well determined. After etherization she was turned head downwards, but this failed to dislodge the tooth. Tracheotomy was then performed, and a pair of dressing forceps, bent at four inches from the end to an obtuse angle was introduced, but the tooth could not be grasped. A long untwisted loop of slender silver wire was passed down until by good luck it came in contact with the tooth, the forceps passed over it caused it to take hold, and the tooth was removed. Rapid recovery ensued.

HAY FEVER.

Dr. Carl Seiler says that all sufferers from hay fever invariably have hypertrophic nasal catarrh, and if during the winter you remove the hypertrophies with a dental drill or the cautery knife, the hay fever will not return during the summer. The anterior end of the nares is not at all sensitive, and the septum of the nose may be deflected at this point without producing any more symptoms than those caused by the occlusion of the cavity, while the posterior and middle parts are very sensitive.—*Med. and Surg. Reporter*.

CARBOLIC ACID.

From the results of a series of experiments, W. Meyke arrives at the following conclusions: 1. Pure carbolic acid should be colorless, have the proper boiling point, and be entirely volatilized by heat. 2. The congealing point is of secondary importance. 3. Carbolic acid is colored red when kept in glass bottles containing lead. 4. The best vessels for keeping carbolic acid are made of tinned sheet iron.

IN INDIA.

The Medical College at Madras, has added to its faculty a chair for dental surgery, with Mr. H. J. Gould, L. D. S., for Professor.

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MALTINE with Pepsin and Pancreatine.
MALTINE with Phosphates.
MALTINE with Phosphates Iron and Quinia.
MALTINE with Phosphates Iron, Quinia & Styrch.
MALTINE Ferrated.
MALTINE WINE.
MALTINE WINE with Pepsin and Pancreatine.
MALTO-YERBINE.
MALTO-VIBURNIN.

MEDICAL ENDORSEMENTS.

We append, *by permission*, a few names of the many prominent Members of the Medical Profession who are prescribing our Maltine Preparations:

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MALTINE is prescribed by the most eminent members of the Medical Profession in the United States, Great Britain, China and the English Colonies, and is largely used at the Principal Hospitals in preference to any of the Extracts of Malt.

We will forward gratuitously a 1-lb. bottle of any of the above preparations to Physicians who will pay the express charges. Send for our 28-page Pamphlet on Maltine, for further particulars.

THE MALTINE MANUFACTURING CO.,

JOHN CARNRICK, President.

(Of Reed & Carnrick, Manufacturing Chemists and Pharmacists.)

SPECIMEN LETTER.

" November —, 1883.

"The S. S. WHITE DENTAL MFG. CO.,
PHILADELPHIA, PA.

" GENTLEMEN :—Please send me by return Express

" 1 Bronzed Handled Excavator, each Nos.

" 1¼-in F. C. Handle Plugger, page — Catalogue, each Nos.

.....
" 6 Engine Burs, No. etc., etc., etc.

" Inclosed find postal order for same, \$

" Why is it that I cannot get your instruments from ——? I have repeatedly called for them, together with other articles of your manufacture, and almost invariably received as a reply that they were "out of them at present,—would have them soon;" "we will order them for you." Or, as has been often the case, they have attempted to palm off some other manufacture on me, accompanied by the remark that it was just as good as yours. Sometimes I have needed a particular form of instrument and could not wait to have it ordered, so have taken the best they could offer, and almost invariably have I regretted the purchase; hence my query as above. These dealers profess to keep a well-stocked depot, but my experience leads me to express the belief that it is badly stocked with cheap instruments. I am a firm believer in fine quality goods, and intend to have them—even if our local dealer does not keep them," etc.

Our object in quoting the above from this letter, is to direct attention to it as a "specimen" of the communications which we frequently receive from American and European dentists. We thank our correspondents for such information, and we shall be glad to serve them from any of our houses. In publishing this extract we have carefully avoided all names, even that of the city from which the letter came, not desiring to implicate any local dealer. Many, perhaps, a large majority of them, do keep a good stock of our Instruments, Teeth and miscellaneous goods, but some, we regret to say, are persistently endeavoring, as our correspondent declares, to "palm off some inferior manufacture," on their customers. If these dealers were to have the opportunity of examining our mail-matter, they would probably learn why they cannot furnish certain dentists with more goods.

We take the present opportunity to state that it is within our knowledge that not only are other manufactures offered when ours are called for, but base imitations are supplied, with the *representation that they are our make*. A case of this kind was brought to our notice not long since in which the dentist was very much provoked, thinking himself swindled. He expressed this opinion very freely to one of our traveling agents, and was requested to show the article complained of. It was immediately pronounced to be a *miserable* "imitation." The difference between that and one of our make was explained, and it is needless to say that he now either sends to us direct or insists upon seeing our trade-mark on the goods offered him.

We might direct attention to several other practices resorted to, such as having phototype prints made from our cuts, imitating our well-made articles, and cheapening the cost by slighting the workmanship, finish, etc.

We call attention to these abuses and impositions in order to inform practitioners that they can get our goods direct if the local dealer will not supply them.

THE S. S. WHITE DENTAL MANUFACTURING CO.

Philadelphia,

New York,

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T H E

Independent Practitioner.

VOL. V.

FEBRUARY, 1884.

No. 2.

Original Communications.

FERMENTATION IN THE HUMAN MOUTH ; ITS RELATION TO
CARIES OF THE TEETH.

BY DR. W. D. MILLER, BERLIN, GERMANY.

During the last two years I have stated at different times and places, as the result of many experiments, that "the first stage of dental caries consists in a decalcification of the tissue of the teeth by acids, which are for the greater part generated in the mouth by fermentation." The object of the investigations described in this and the following papers is to determine this ferment, and the conditions essential to its action. I shall seek in what follows to present no views which are not the legitimate and necessary results of rigid and exact experiment, and I shall give in detail a description of each series of experiments, in order that every one may have an opportunity to judge of the accuracy of the work and the justice of the conclusions drawn from it.

It is, nevertheless, with some hesitancy that I venture to present before the dental profession the results of my last six months' labor, having learned by experience the almost endless number of agents which combine to vitiate such a series of experiments as that which I am about to offer, and the exceeding great care which is necessary in excluding or eliminating all irrelevant factors.

If, therefore, I have been guilty of any oversight, or failed to take all possible precautions to guard against error, I hope that some one will kindly show me where I have gone astray, and put me in the right course again.

The larger apparatus necessary for these experiments are :

1. A large double-walled incubator, with gas regulator for maintaining any desired constant temperature.

2. A Koch sterilizer.

3. A damp chamber. (See Fig. 1.)

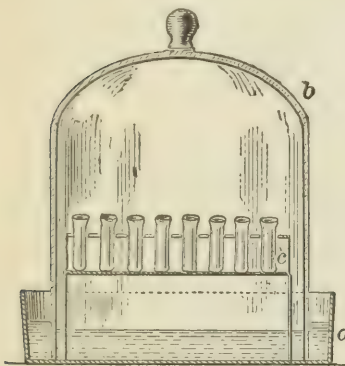


FIG. 1.

4. A drying oven for sterilizing instruments, glass vessels, etc., at a temperature of one hundred and fifty degrees Centigrade.

5. A good microscope, with either water or oil immersion.

It is not necessary to mention the smaller instruments, glass vessels, etc., etc., nor the apparatus necessary for making a chemical analysis of the products of the fermentation ; these are sufficiently familiar to every one.

To avoid repetition, I will say here that *all* vessels and instruments used in the culture experiments were purified in the flame of a Bunsen burner, when practicable, otherwise by exposing for fifteen minutes in the drying oven to a temperature of one hundred and fifty to one hundred and sixty degrees Centigrade, (three hundred and two to three hundred and twenty degrees Fahrenheit), and that all substances used as culture substrata were sterilized four times by exposure, at intervals of twelve hours, for half an hour, to steam at one hundred degrees Centigrade, in a Koch sterilizer. Furthermore, all infections from carious dentine were made as follows : The cavity of a freshly extracted carious tooth is cleared of food, and carefully brushed over with a pledget of cotton dipped in carbolic acid (ninety per cent). The acid is then thoroughly absorbed by means of bibulous paper, and layer after layer of the soft dentine removed with a repeatedly purified instrument, until the deeper parts are reached ; then, a portion of the clean soft den-

tine, scarcely as large as a pin-head is removed, and quickly brought into or upon the culture medium.

Infections from the mouth were made by scratching upon the surface of the mucous membrane of the cheek, or the margin of the gum, with the end of a clean platinum wire, and then dipping it into the culture medium. The materials used for culture were :

| | | |
|--------|-------------------|------|
| No. 1. | Sterilized saliva | 50,0 |
| | Sugar | 1,0 |
| | Starch | 0,5 |

No. 2. Sterilized milk.

| | | |
|--------|-------------------|------|
| No. 3. | Decoction of malt | 50,0 |
| | Sugar | 1,0 |

The malt decoction is made by boiling, with slight evaporation, 20,0 dry malt with 120,0 water for ten minutes, and filtering.

| | | |
|--------|-------------------|------|
| No. 4. | Sterilized saliva | 50,0 |
| | Water | 50,0 |
| | Starch | 20,0 |
| | Sugar | 2,0 |

The starch is added to the cold solution of water and saliva, and stirred until it becomes evenly divided throughout the solution ; it is then poured into shallow glass vessels with glass covers, and put into the sterilizer for complete sterilization ; it there congeals and forms a solid mass, upon the surface of which the infections may be made. It possesses all the advantages of gelatine, with one great additional one, in that it does not liquify at blood temperature.

| | | |
|--------|-------------------|-------|
| No. 5. | Decoction of malt | 100,0 |
| | Sugar | 2,0 |
| | Starch | 20,0 |

Prepared in the same way as No. 4.

| | | |
|--------|--------------|-------|
| No. 6. | Beef extract | 2,0 |
| | Water | 100,0 |

| | | |
|--------|--------------|-------|
| No. 7. | Water | 100,0 |
| | Beef extract | 2,0 |
| | Sugar | 2,0 |

No. 8. Fresh baked potato, cut into slices one half inch thick, with a clean knife.

Other substances were used, but need not be considered here. Additional sugar is not absolutely necessary where malt is used, though I have, so far, obtained better results by adding a small quantity. The kind of sugar is immaterial, provided it be fermentable; even cane sugar, though not directly fermentable, is converted into a fermentable variety in the culture. Where small quantities of any culture material were used, the cultures were kept in the damp chamber to prevent their drying up or becoming too concentrated by evaporation. All cultures were made under a temperature of thirty-six to thirty-eight degrees Centigrade.

We will begin with the fundamental experiments.

Exp. 1. Fresh saliva is mixed with sugar or starch, one to forty, and kept at blood temperature. It invariably becomes acid in four to five hours. But some one, no doubt, will say that this is a result of no consequence, because the experiment was not made within the oral cavity; for his personal benefit we give the following :

Exp. 2. A glass tube two c. m. long and three m. m. wide, is filled with starch, sterilized, and fastened to a molar tooth in the mouth on going to bed; next morning the contents of the tube will have a strong acid reaction. A cavity in a tooth, or a piece of linen, which may be saturated with a solution of starch, will answer the purpose as well as the glass tube. That the acid is the same in each case will be further established below.

Exp. 3. The mixture of saliva with starch or sugar, is kept for a half-hour in the sterilizer at one hundred degrees Centigrade, and then placed in the incubator; it does not become sour in four, nor in twenty-four hours; in fact not at all. We conclude that the ferment is rendered inactive by a temperature of one hundred degrees Centigrade.

Exp. 4. The starch is heated to one hundred and fifty degrees Centigrade before mixing with the saliva; the solution still becomes sour. Conclusion: the ferment exists, not in the starch, but in the saliva.

We have now to determine the question: Is it an organized ferment (fungi,) or is it an unorganized ferment (ptyaline)?

This question is determined by the following experiments:

Exp. 5. From six to eight grams of saliva are agitated in a test-tube with as much sulphuric ether as it will take up, starch added, and the whole put in the incubator. On examination after a few hours, we will find sugar in the solution, but no acid; in other words, the acid-forming ferment has been rendered inactive, but the unorganized, sugar-forming ferment, not.

Exp. 6. Instead of ether, enough carbolic acid is added to make the solution one-half per cent. strong; the result is the same. These two experiments show that the ptyaline of the saliva (which was not injured by the presence of the ether or the carbolic acid, as proved by the fact that it retained its diastatic action), is not the cause of the acid reaction.

Exp. 7. According to Paschutin, ptyaline is devitalized by exposure twenty minutes to a temperature of sixty-seven degrees Centigrade. Organized ferments could not be killed by the same means. We accordingly subject a mixture of saliva and grape-sugar to the given temperature for twenty minutes. We thereby destroy the ptyaline; the mixture, nevertheless, becomes sour if allowed to stand in the incubator for twenty hours.

This experiment confirms the result of experiments five and six, and we begin to suspect that we have to deal with an organized ferment. This supposition is confirmed by the following experiment.

Exp. 8. Six to eight drops of a perfectly sterilized solution of sugar in saliva (1-40), in a miniature test tube with cotton cork, are infected from the mouth, or with carious dentine, as described above; in twenty-four hours the solution will be acid; with a fraction of a drop of this solution a second tube is infected; it will likewise becomes acid; from this a third, etc. etc.; each becomes acid in turn, while the control tube (containing the same solution, not infected), remains neutral.

The conclusion is plain, that we have to do with a ferment which is capable of reproducing itself; in other words an organized ferment. It therefore becomes evident that not only free in the

mouth, but in the deeper parts of carious dentine, we have a fungus which is capable of producing an acid reaction in characteristic substrata.

Exp. 9. Each of thirty small tubes were furnished with eight drops of solution No. 1, and each of thirty other tubes with as many drops of solution No. 3, and all were sterilized. Twenty-four were then infected from the mouth, twenty-four with carious dentine, and twelve were left as controls.

In twenty-four hours all forty-eight of the infected solutions were acid, while the twelve controls remained neutral.

Exp. 10. Make a solution of 40,0 of saliva and 1,0 of starch; put equal portions in two flasks, *a* and *b*, and cover the surface of the solution in *a* with a layer of pure oil to prevent the free access of air, or:

Exp. 11. Place flask *a* in an air-tight bottle containing a fresh alkaline solution of pyrogallie acid (which abstracts the oxygen from the air), or:

Exp. 12. Exhaust flask *a* by means of the air pump, so as to produce a tolerably complete vacuum. The quantity of acid produced in *a*, will be, on an average, the same as that produced in *b*.

We conclude from experiments eight, nine, and ten, that the fungi in question is independent of the free access of air or oxygen for its development and characteristic action, a conclusion which would exclude the fungus of vinegar, (*mycoderma aceti*) and which is of the utmost practical importance, since it signifies that this fungus can develop and perform its work deep in the dentinal tubules, or under fillings, provided the necessary materials are furnished it.

Exp. 13. Place a piece of carious dentine upon the surface of the culture material described in number four, five, or six; in twelve hours the dentine will be surrounded by a white ring, from four to eight m. m. in diameter; the material within this ring will be partially liquified, and have an acid reaction. The same result follows when the infection is made from the mouth.

Exp. 14. Produce 10,0 of saliva by chewing a sterilized quill toothpick, add 0,5 starch or sugar, and place in the incu-

bator. Then give the oral cavity a most thorough cleansing with pure water, using toothpick, brush and floss, the object being to free the mouth from micro-organisms as completely as possible. Then produce again 10,0 saliva, add 0,5 starch or sugar, and put in the incubator. The amount of acid produced in a given time will, in the latter case, be often as low as one-fourth of that in the former. Conclusion: By thoroughly cleansing the mouth we no doubt remove the greater portion of the fungi, hence the small amount of acid produced. By using strong antiseptics, or by repeatedly filtering the saliva, we may reduce the amount of acid produced in twenty-four hours almost to 0. An experiment yet to be made is to take the saliva direct from the gland, before it becomes infected with the organisms of the mouth; it should not then become sour when mixed with starch and allowed to stand at blood temperature. In every case a careful microscopic examination of the cultures was made, revealing the constant presence of a fungus, chiefly in the form of diplococci, either single or in chains, less often in form of bacteria, bacilli, or even threads. (See fig. 2).

Sometimes all these forms are found on a single thread, thus proving what I have already demonstrated for *Leptothrix buccalis* and *Leptothrix gigantea* (Miller), the genetic connection of these different forms. The particular form in which the fungus occurs depends somewhat upon the culture medium, as well as upon the age of the culture. By using a glass tube as culture



FIG. 2.

vessel we may demonstrate that whether the culture is made in the mouth or out of it, under similar conditions the fungus is the same. The fungus is not capable of producing an acid reaction of all substances in which it may vegetate. A luxuriant growth may be obtained in beef extract, but no acid is produced, unless sugar is present.

It is only from carbo-hydrates (especially sugar) that it appears to be able to produce acid in any considerable quantity, or at all. This question, however, as well as the morphology, physiology, development and life-conditions of the fungus, will receive consideration in a separate number.

We have, then, a micro-organism which agrees morphologically with the *Bacterium acidi lactici*, and which, without the presence of oxygen, produces acid from sugar, so that we would probably not be far from right if we were to say that the organism in question is simply the fungus of lactic acid; we will, however, reserve our decision for the following number, where the analysis of the product of the fermentation will be given, that being the one *sure* method for determining the species of any ferment bacterium.

In all cultures, it is of course essential that the culture-substratum be neutral when the inoculation is made; should it be acid it must be neutralized. This is best accomplished by very carefully adding the carbonate of sodium. Without this precaution it would be somewhat difficult to determine whether acid had been produced by the action of the fungus or not.

In the light of these experiments the thorough decalcification of the tooth substance in caries is easily accounted for. The saliva is, no doubt, always, particularly in mouths of uncleanly persons, impregnated with sugar, either taken directly into the mouth, or formed there by the action of the ptyaline of the saliva upon starch. The question of the presumable diastatic action, as well as of a presumable inverting power on the part of the organisms themselves, will be considered in the chapter on Physiology.

Wherever this stagnates between the teeth, in fissures, etc., etc., especially during sleep, it *must* become acid. When a portion of the dentine has become decalcified, it, as is well known, takes up the liquids of the mouth and the fungi with them like a sponge, and the fungi, being independent of the free access of air, go on producing acid within the dentinal tubules. As each layer of dentine becomes softened in turn, the micro-organisms *follow after*, continually producing new acid. Hereby the zone of softened, non-infected dentine, is readily understood. The production of acid is

entirely independent of the reaction of the saliva as it enters the mouth, hence the uselessness of "testing the saliva" for acid. That the liquid squeezed out of the tubules of *decaying* dentine has an acid reaction, every dentist in America who has a piece of blue litmus paper and is not color blind, can easily prove for himself.

The result of experiment Six plainly shows one cause of the good effects which the profession has seen from the use of carbolic acid.

The fact that a pure culture was obtained in most cases by the first inoculation, seems to indicate that the fungus exists in a state of tolerable purity in the deeper parts of the carious dentine. This question will, however, receive consideration later. The action of the fungus upon substances which contain no carbohydrates will also be considered under Physiology.

SYSTEM AS APPLIED TO INSTRUMENTS AND BOOKS.

BY DR. W. ST. GEO. ELLIOTT, LONDON.

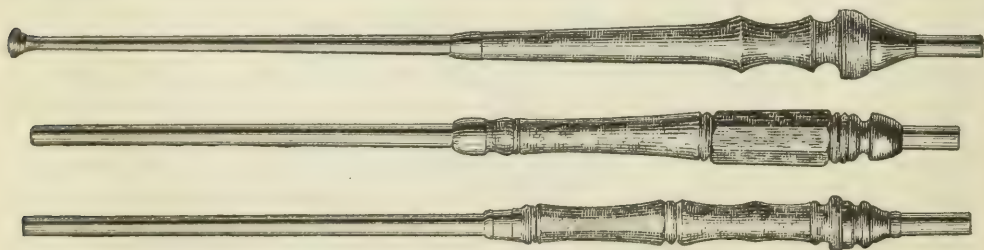
Order is Heaven's first law—a law, alas, generally unappreciated by the majority of our profession, generally neglected by all.

Nature cannot work out her daily problems without that nice adjustment of means to ends, that law of order which renders easy what would otherwise be impossible; when we violate the law we entail upon ourselves additional labor and vexation of spirit, and fail where we should succeed. Enter the laboratory of a dentist of the present day, and see what indescribable confusion exists on every hand.

On a side shelf plaster models mixed up with some lumps of old wax, a broken tool or two, and some tobacco. Open a drawer and behold confusion worse confounded. Some odd sizes of screws, impression trays, old artificial sets, human teeth, dirty rags, and perhaps a stale piece of bread. Do not look behind the door, or under the table. *They* are not expected to be in order. Walk up stairs to the office: A Wilkerson chair perhaps meets the eye, but what neglect; the nickel plating has been allowed to assume that zinc-like color we are all so familiar with; the engine, too, has

not been cleaned for months. A man who takes a pride in his operations should take some pride in his instruments, and if he has no assistant should keep his own in order, first seeing that they are in perfect working condition, and then that they are clean.

All instruments should be handsome as well as good ; attractive to a professional eye as well as efficient ; with this end in view I have adopted the following plan, which has answered perfectly. All ordinary instruments are made with socket handles, of which I have in use nearly a hundred. These all have celluloid centers in different colors, and are made as follows : A piece of celluloid the necessary size, say two inches long and one-half inch thick, is drilled through lengthwise. Together with the steel handle it is heated over a Bunsen burner, and when the celluloid is soft the steel is driven through it as far as may be required, brass ends added and soft soldered on. It is then put on the lathe and the celluloid and end pieces turned down to suit, and nickel plated. This forms a permanent handle which for beauty and efficiency leaves nothing to be desired. The points are changeable in the sense that they are replaced with new ones when worn out. The system I have adopted for excavators is this : All are in one drawer in a row from right to left, commencing with the right angled hoes, ten each, in dark red ; the oblique hoes, ten, light red ; the right angled hatchets, dark blue, and the oblique angled, light blue ; large points always to the right, graduated to the left, so that the hand is instantly placed upon the instrument needed, and when mixed with others on the table they can be singled out at once by color, etc. The pluggers cannot be systematized so thoroughly ; those of a kind have handles nearly alike, the difference being in the shape ; *e. g.* Varney's set is in mottled celluloid, each handle different in design.

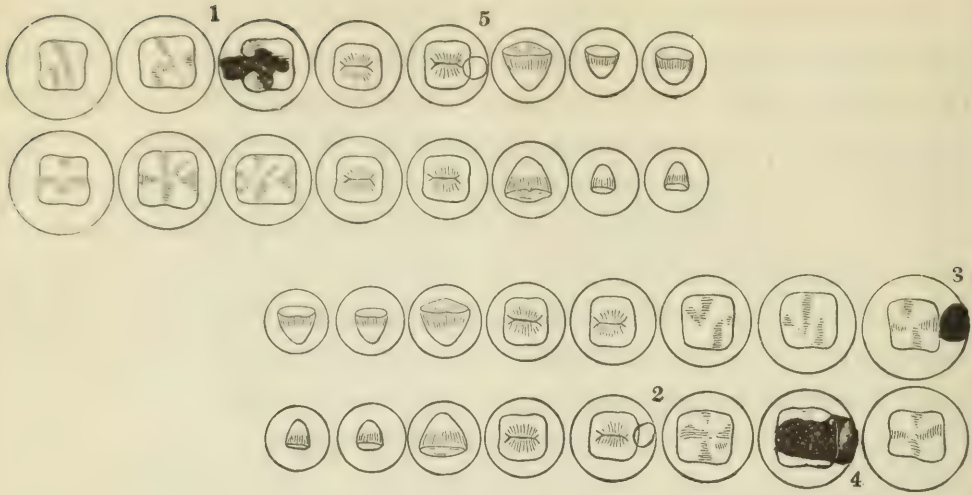


It is, however, more in regard to professional book-keeping that I would like to show the value of system. No doubt the majority of dentists will at once conclude that no matter how fully the system may meet the demand, there is far too much of it for general use, nor do I pretend that so elaborate a system is always necessary; but where the dentist wishes to know at the end of the day, week, month, half year or year, how much practice he has had, how much earned, collected, and still due, he cannot get all these particulars in any other way that I know of, and while a small practice can be kept in a small book, to properly manage a large practice a thorough system is called for.

Allow me to commence with the appointment book. For the purpose of reference I label this book with the year, and commence it on January 1st. All future appointments are made in pencil, as changes are inevitable, but as soon as the day is over they are put in ink, with the time given to each. Should any one fail to keep an appointment, it is so marked. This book is kept as a permanent record of appointments for the year, and I have often found it of value. Next in order we have the Ledger, a reduced copy of which appears on next page.

This is the third form I have used. It will be seen that the median line divides the right from the left, the temporary teeth being under the permanent ones.* Of course the teeth may be arranged in any way; the main object in adopting the one illustrated is that the space occupied is less. You will notice several new features in these records. *First.* The A A, approximate age, a matter of value if the testimony of your records is to be complete. *Second.* We have the time occupied at each sitting, then the usual columns for debtor and creditor; a column P D, or probable duration of work, which is estimated by the character of the case, cleanliness of the patient, etc.; generally putting it at ten years for a good average case in gold, and when temporary work, as oxyphosphate, etc., is used, the durability is generally put at one year; in the case of amalgam the same time is given as for gold. Then we have what is to me the feature of greatest value—the place for remarks,

The cuts of the temporary teeth are necessarily omitted.—ED.



Hon'ble Miss SMITH,

Sent by Dr. Smith, of Melbourne.

Pine Shanty, Undercloud, Middlesex.

| Date, 1882. | No. | OPERATION. | Time. | Dr. £ | Cr. £ | P. D. 1 | AA 99 2 | REMARKS. |
|-------------|-----|-------------------------------|-------|----------|----------|------------|------------|---|
| July, 25 | 1 | Gold Filling..... | | 10.10 | | 10 | | Tin foil at cervicle edge. |
| " " | 2 | Poulson's Cement. | 1.55 | 1. 1 | 11.11 | 1 | | Electric Mallet. Sensitive. |
| Aug. 6 | 3 | Amal. Fill. (Nickold's)..... | .30 | 1. 1 | | 1 | | Soft chalkey tooth. Nerve nearly exposed. |
| " 10 | 4 | Gold Filling..... | 3. | 15.15 | | 10 | | Patient irritable. Visit Aug. 9th. 0. |
| " 11 | 5 | Gutta Percha Fill. (Oliver's) | .20 | 1. 1 | | 1 | | Nerve Canals packed with carbolized paper. Platinum pin in distal root. |
| " 16 | | | | 17.17 | 17.17 | | | Temporary filling to push away gum. Bill Aug. 15th. Visit Aug. 12th, 0. do. Aug. 13th, 0. |

1. P. D.—Probable duration. 2. AA.—Approximate age. Gold Fills. are located in red. Amal. Fills. are located in black. White Plastics are located by a circle.

a line of about four inches for each operation. The character of these observations is shown on the page furnished. It also shows that the patient paid two visits for which no charge was made, that the work was finished August 11th, bill sent in on August 15th, and paid August 16th. The patient's first visit, as the record shows, was paid for at the time. Thus we have a recorded history to each operation, either pathological, as pericementitis, alveolar abscess, etc., etc., or operative, as the use of tin foil mixed with gold, the character of the surface, whether made with Pack's pellets, folded foil, or heavy numbers. This enables us to study the comparative wearing qualities of the different foils. With many dentists this ledger would give all the information they desire to have. I am not,

however, satisfied with this. In conducting a large practice I wish to know what is due each day, week, month, quarter, etc., and for this purpose when my secretary has posted the ledger for the day, she makes the necessary entries in the Day Book, a sample of which follows :

DAY BOOK.
July, 1882.

| Date. | NAME. | Opera. | Dr. 1 | Cr.on Dr. 2 | Cr. 3 | Bal. 4 |
|-------|---------------------------------|------------------------------|----------|----------------|----------|-----------|
| 3 | Hunter, Miss..... | | | | 1.1 | |
| " | Hunter, Mrs..... | 2 Gold | 8.8 | | | 8.8 |
| " | Payne, Miss..... | 1 Gut. P. Clean. | 2.2 | | | 2.2 |
| " | Mercer, Col..... | 1 Gold. Treat. | 1.1 | 1.1 | | |
| " | Smith, Mrs..... | 1 Gold. 1 Gold. Treat. | 3.3 | | | 3.3 |
| " | McPherson, Mr. | 1 Amal. | 5.5 | | | 5.5 |
| " | Gray, Mrs | 1 Gut. P. 1 Toss. | 3.3 | | | 3.3 |
| " | Gray, Miss..... | Reg. Plate. | 3.3 | | | 3.3 |
| 4 | Hunter, Mrs..... | | | | 8.8 | |
| " | Brown, Miss..... | | | | 16.16 | |
| " | Davies, Mr..... | | | | 26.5 | |
| " | Norton, Mr. H..... | Treat. 1 Amal. | 2.2 | | | 2.2 |
| " | Stearn, Miss | 2 Gold. | 9.9 | | | 9.9 |
| | For part of week (2 days) | | 37.16 | 1 1 | 52.10 | 36.15 |

1.—Debtor, 2.—Creditor on Debtor. 3.—Credit on old account. 4.—Balance due on day's work.

It shows the name of the patient, the operations performed for each, the price, and cash account. Another column for payments on back accounts, and another for the balance due. The page given shows that on the third of the month Miss Hunter paid a back account of one guinea. Mrs. Hunter had two gold fillings put in, charged eight guineas, and as they were not paid for at the time they appear also in the column of balance due. Colonel Mercer's

fee appears in the second, or creditor on debtor column, because he paid it at the time. This book is handed to me after posting, and I verify it. I can thus turn to any day in the year and see what was done. The monthly and quarterly statements are but compilations from the day book, at the end of which there is a schedule of earnings, month by month, and year by year.

MONTHLY REPORT.

AUGUST.

| | £ | s. | D. |
|-----------------------------|------|----|----|
| Gross income of Office..... | 545 | 19 | |
| Total cash receipts..... | 415 | 10 | |
| Total balance due..... | 1770 | 4 | 6 |

| | £ | s. | D. |
|-------------------------------|----|----|----|
| Expenditure..... | | | |
| Mechanical Assistant..... | 13 | 10 | |
| Office Secretary..... | 10 | | |
| “ Boy..... | 3 | | |
| Petty Office expenses..... | 10 | 6 | 3½ |
| Total office expenditure..... | 36 | 16 | 3½ |

SEMI-ANNUAL REPORT.

JAN. TO JULY.

| | £ | s. | D. |
|-----------------------------|------|----|----|
| Gross income of Office..... | 2269 | 0 | 0 |
| Total cash receipts..... | 1917 | 6 | 9 |
| Total balance due..... | 1639 | 15 | 6 |
| Office Expenditures..... | 171 | 12 | 1 |

INCOME BY MONTH, IN GUINEAS.

| | 1880 | 1881 | 1882 | 1883 | 1884 |
|----------------|------|------|------|------|------|
| January..... | 120 | 215 | 225 | | |
| February..... | 300 | 300 | 329 | | |
| March..... | 350 | 375 | 402 | | |
| April..... | 310 | 341 | 376 | | |
| May..... | 250 | 425 | 465 | | |
| June..... | 370 | 450 | 469 | | |
| July..... | 321 | 501 | 545 | | |
| August..... | 40 | 50 | 69 | | |
| September..... | 350 | 357 | 360 | | |
| October..... | 270 | 275 | 280 | | |
| November..... | 390 | 400 | 410 | | |
| December..... | 400 | 421 | 425 | | |

Finally, there is a general index, where the daily accounts go through three ledgers, or more, A, B, C, etc. The general index shows in what book or books the name appears.

Outside of purely professional books I keep an office expense book, in which are entered all office expenditures, so that I can tell at the end of each month what my dental depot account is, how much I pay for mechanical work, how much for sundries, as files, pumice-stone, etc. Once a year I have a public accountant go over all the books, and correct any mistakes that may have occurred. In the laboratory I try to keep as thorough a system with all my tools, so that time is saved by having just what is wanted where I can place my hand upon it, and I try to avoid lumbering up the table with tools of all kinds, helter-skelter.

Although so much satisfaction is derived from system, yet go where you will, it is the absence of it that you notice. Who ever saw a watchmaker or jeweler keep his tools in order, and yet while admitting that time is money, and that system saves time, they always act as if it might be good for others, but not for them. Finally, let me implore you to cultivate that of which nature has given us so many examples, system. We all wish to excel in our chosen calling; then let us take the means at our disposal for our assistance, systematize our instruments, our books, our ideas, our operations.

DENTAL NOTES IN DIFFERENT PARTS OF THE WORLD.

BY GEORGE H. PERINE, D. D. S., NEW YORK.

Among those on the continent of Europe who were engaged as practitioners, and investigators, whose object was to establish physiological and pathological fact, we may mention Cuvier and Roussian, who by the aid of the microscope in their researches, contributed much to the increase of professional knowledge. It is to the celebrated naturalist Lieuwenhoek, of Holland, that we are indebted for the discovery of the dental tubuli, which was made by him in 1678.

Ryff, a German, who wrote a valuable work on the teeth, is credited with having, in 1560, invented the "Pelican," an instrument for the extraction of teeth, to which we have frequently referred in previous chapters.

To Purrmann, of Breslau, is given the credit of taking impressions of the mouth in wax as early as 1690, and his was probably the first attempt of the kind made.

Pulpis, a successful practitioner in Amsterdam, a man of much ability, and of experimental mind, recommended the tamponade after the operation of extraction.

The first plaster model of the mouth, it is believed, was made in 1756, by Pfaff, dentist to Frederick the Great.

Nicholas Tulp, an Amsterdam dentist, is said not to have accepted Pare's theory regarding the scarifying of the gums advanced by him in 1569.

Lawrence Heister, a distinguished surgeon and anatomist, who was born at Frankfort in 1683, and practiced in Amsterdam, did not consider lancing of the gums prior to extraction necessary ; he, however, advised the scarifying of the gums in cases of difficult dentition, believing that the convulsions which often accompany this process of nature, are due to the excessive resistance of the gum which is too hard to yield to the pressure of the advancing teeth. His method of removing tumors was to apply to their base a ligature. He also advocated the employment of the actual cautery. For the extraction of different teeth, he recommended various instruments, some of which he manufactured himself. Among those at his command were the "Pelican," "Elevator," and the "Forceps," but of the other appliances we have but meagre descriptions. For filling decayed teeth, Heister employed gold leaf cut into small pieces. In 1707, he was appointed Surgeon-General, and in his connection with the Dutch military hospitals, he performed many important operations during the war in Flanders. Being thoroughly informed in his profession, and a man of much ingenuity, he made many valuable improvements in the instruments then in use. In 1718 he published his celebrated work, "*Institutions of Surgery*," which was in 1739 translated into Latin, and in 1742

into English. It contained forty pages of illustrations, representing various operations, and the instruments employed in their performance. He was made Fellow of the Royal Academy of Paris, and in 1719 George I, of England, appointed him Professor of Anatomy and Surgery to the University of Helmstadt, which position he held until his death, which occurred in 1758.

Frank, of Herdelburgh, who was a practitioner of much prominence, and a writer of ability, published in 1672 a work, entitled "*Restoring Teeth to Soundness.*" It was an excellent work for the time in which it was written, and contained many sound theories, which stamped the author as a deep thinker and careful student.

The Germans have for years been making vigorous efforts to establish institutions for the thorough teaching of the dental specialty. Unfortunately, however, the government controls all matters relating to educational interests, hence individual exertions are attended with but slight results. It is, however, believed that movements of importance will be made to induce the government to give its consent and lend its aid to the establishment of such colleges as are so greatly needed, to place at the disposal of those wishing to adopt the specialty, the means of acquiring the necessary knowledge to enable them to practice with credit to themselves and benefit to their patients. Already one of the oldest Universities in Europe—that at Budapest—has established a dental chair, and at Vienna a dental college was founded in 1875, which was the first upon the European continent.

In 1835, a decree was passed by the government of Prussia that "no person should be admitted to examination for a license to practice as a dental surgeon without a good recommendation, and, in addition to his testimonials, he must have attended, during a curriculum of two years, lectures on anatomy; the theory of medicine; general, special, and operative surgery; a chirurgical clinic, when practicable, particularly on dental surgery."

Holland has appointed a dental professorship in one of its medical schools, the Professor of Dental Surgery having passed his dental course with a well known New York practitioner.

In the Netherlands, dentistry was for years restricted by a sepa-

rate law. In the year 1865, it was decided to make the law uniform, and those wishing to practice dental surgery were compelled to study medicine; the degree of doctor of medicine entitled them to practice the specialty without further study or examination. But few persons, however, directed exclusive attention to the practice of dentistry up to 1878, when, in December of that year, a new law was passed; and, in 1879, additions were made relating thereunto, and regulating the practice of dental surgery, as one of the specialties of medicine.

Germany has its dental organizations; the "Society of German Dentists," being the first, was organized in Berlin in 1859. Since that date nine more have been founded. There are three dental periodicals published in Germany.

What Lieuwenhoek was to Holland, Retzius was to Sweden. He was one of the re-discoverers of the tubular structure of the teeth. Although Lieuwenhoek, in 1678, and Pur Kingie, in 1735, had announced the tubular character of the human teeth, Retzius, entirely ignorant of the fact, made known after careful investigation and researches (consisting of microscopic examination of human teeth, and those of beasts), that the structure of these organs was of a tubular character. He was one of the great workers in the labyrinth of science, and as such will ever be held in grateful remembrance for the services he has rendered the profession of which he was a valuable member. As an author he had much ability, possessing the faculty of expressing with great clearness his ideas. He was born in 1796. In 1819 he graduated with honors, and was in 1839 appointed professor of anatomy at the Royal Academy, Stockholm. He was also professor of anatomy and physiology at the Royal Caroline Institute. After a brief illness he died on the 18th of April, 1860.

Joel Assur, a dental practitioner in high standing at Stockholm, wrote in 1799, a work on the teeth, which was accepted as a valuable book of reference.

In 1881, a movement, beneficial to the profession, was made in Russia, by the establishment of the dental college of St. Petersburg.

In Portugal, professional advancement has been by no means as rapid as elsewhere, owing no doubt to the lassitude which pervades every branch of industry in that country, and generally retards progress. Those who desire to practice the profession in Portugal, are obliged to pass an examination before a medical board. Dr. Starbauch, who for a number of years was in practice at Lisbon, endeavored to excite some interest in professional matters with a view to improving the deplorable state of affairs in that city, but with what result we are uninformed. He was in 1856 appointed dentist to the Royal Family.

Spain can boast of one dental publication, and in 1873, a dental department was connected with the Academy of Medicine at Madrid, and in 1880, an American was appointed dentist to the Spanish court.

Italy is credited with a dental organization, known as the "*Soucta Odontologica Italiana*."

In New Zealand a "Dental Act" similar to that existing in England, went into effect June 1st, 1881. Its requirements are, that those desiring to practice the specialty, shall in addition to the production of credentials establishing their connection with the profession, pass a satisfactory examination before the examining board, which consists of six persons appointed by the University of New Zealand. A heavy penalty is imposed upon those who attempt to practice before having complied with the requirements of this new law.

In Africa, prior to the organization of the American Colonization Society, the practice of dentistry was unknown. We are informed that the most approved method of extracting an aching tooth of any of the natives, was that of attaching to the offending member a string, to the end of which a heavy missile was secured, which upon being thrown with force, generally dislodged the troublesome member, which not unfrequently carried with it a portion of the alveola process. After the establishment of Dr. Clark, at Liberia, and Dr. Tiff, at Kaw Mendi, Western Africa, the popularity of the native method of dental practice began to wane, and the forceps now perform with comparative satisfaction the work of the string and rough projectile.

An act has, however, been passed by Parliament, prohibiting the practice of dentistry, without first having obtained a license from the government, certifying to the proper qualification of those desiring to practice the specialty in Africa.

It is generally conceded that the practice of dentistry in China is of very ancient origin, and the Chinese have been credited with the possession of superior skill in many respects, but we fail to discover upon what ground this theory is based, for the methods adopted by them were in many respects similar to those in favor among the ancient Egyptians, Greeks, and Arabs. Dr. Rogers, however, is of the opinion that the construction and insertion of artificial dentures was understood and practiced in China centuries before the Europeans conceived the idea. The materials employed in manufacturing these substitutes, were bone, ivory, and wood, and the teeth were secured in place with wire. The ancient and modern practice in Japan bears a strong resemblance to that of China.

Rio de Janeiro, the capital of Brazil, has a population of nearly 400,000, and there are, it is stated, nearly two hundred dentists in practice in that city. The Rio de Janeiro Medical College has connected with it a dental department, from which the first graduation was made in 1859.

The University of Bahia, Brazil, also established in 1863 a department of dentistry, from which it will be seen that our South American neighbor is as progressive in his sciences as in industries.

Dr. Dickerson, an American who visited Mexico for the purpose of excavating and making researches among the mounds of its ancient people, informs us that dentistry was undoubtedly extensively practiced by the Aztecs, as fillings and artificial teeth were frequently found by him in the skulls he discovered. At the present day the law requires the practitioner to procure a license from the General Medical Congress, before which body he must undergo an examination which, if satisfactory, entitles him to the privilege of practicing in any part of the republic.

The University of Medicine of the Republic of Mexico, has connected with it a dental department, from which the first American graduated in 1880.

There is one dental journal published in Mexico, and one also in Cuba.

American practitioners can very justly claim the honor of having done much toward raising dental science to a high standard throughout the civilized world. There is scarcely a city of any size upon the face of the globe, where at least one American dentist may not be found, whose beneficial influence is felt and appreciated.

There are in Egypt, Germany, and elsewhere, several female dentists in practice, most of whom are graduates from American schools.

A dental school was established in Switzerland, and located in Geneva in 1880, which is supported by the State.

On the 4th day of July, 1873, a body, consisting of American dentists located in various parts of Europe, was organized in Switzerland, under the title of "The American Dental Society of Europe," and there is little doubt but that this association will continue to exert its influence—which is already great—until throughout the entire continent of Europe the efforts of American skill, energy, and professional enterprise will be still more felt and appreciated.

A CASE OF FRACTURE OF THE INFERIOR JAW.

BY DR. T. B. GUNNING, NEW YORK.

Wm. McM., forty-two years old, was, for the purpose of robbery beaten insensible, and his lower jaw broken between the left incisor teeth. A large cut behind the chin extended up to the floor of the mouth. The face generally was much swollen, with great pain in the glenoid cavities and around the condyles. The displacement of the fragments was very determined, and bandages applied by the medical practitioners were unbearable. Subsequently, at the New York Hospital, the teeth were wired together, but this failing to hold the fragments in place, it was decided to apply a hard rubber splint.

The lower jaw contained sixteen teeth, which were originally short, and by wear were by this time unusually so. A wax impression was taken of the whole at once; the plaster cast from this was separated at the point of fracture, and the parts set in place with the assistance of a cast of the upper teeth, on the plan first made known by Mr. John Tomes. On putting the splint on (See fig. 1), twelve

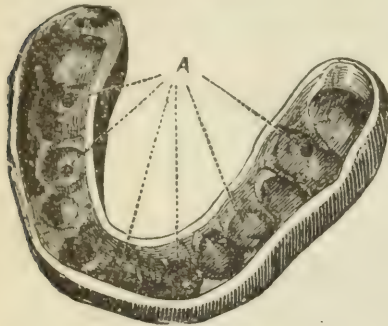


Fig. 1.

days after the injury, some difficulty was experienced in getting the teeth into place, through adhesions holding the fragments of the jaw in displacement. Several openings were cut in the splint, one, the largest, in front of the teeth, each side of the fracture, in order to judge the positions of the fragments of

the jaw. Although the jaw was allowed its natural movement, the splint was not fastened to the teeth in any way whatsoever, the broken jaw being left to the control of its muscles, which, especially the elevators in closing, are a counter-support to the splint, and force the teeth and jaw upward. In the fourth week after the application of the splint three pieces of necrosed bone were removed with forceps, and in a few days afterward another was removed from the mouth of the wound with the fingers. The discharge of pus was much lessened by this, and in five weeks from the application of the splint the wound beneath the chin was nearly closed. When the splint was removed in the second week from its application, there was but little displacement of the fragments, and on the thirty-fifth day after its application there was good union between the fragments, although it was necessarily very soft, through the proximity of the suppurating wound. From the time the splint was applied the pain rapidly disappeared, and the man has been quite comfortable except from the pain of the wound when touched. Now that this is healed, there is every probability that the union of the fracture will rapidly ossify.

The jaw was broken on September 17th, and the splint applied on the 29th, twelve days after. It was taken off frequently during the

first thirty days, in the first instance to show the fracture to Dr. Weir's surgical class in the College of Physicians and Surgeons, and afterwards to remove the necrosed bone before spoken of. A report was first made to the New York Clinical Society, but this ended with the weekly observation of the case on Saturday, November 3rd, at which time it was supposed that the hole under the chin would be virtually closed in a few days. It is, however, still discharging, although no fragments of bone have been removed since those in October. The swelling on the inside of the mouth is nearly gone, and the loosened incisors are growing firm, while the hardening of the union is progressing satisfactorily.

The premature meeting of the lower back teeth with the upper ones, is, perhaps, owing to injury to the capsular ligaments which cover the condyles, but no apprehension need be felt but that the front teeth will close firmly in three or four months. The chief importance of this case lies in the fact that it is a complete demonstration that an inter-dental splint which covers all the teeth of the lower jaw, will hold the fragments in place when the fracture is between the canine teeth, without external appliances. In fact it will do this in nearly all cases, even when the fracture is as far back as the first permanent molar. This important feature was first demonstrated in a patient in the Bellevue Hospital, whose jaw was broken in December, 1863. See N. Y. Med. Jour., vol. iv., p. 14.

REMARKS UPON DISEASES OF THE ANTRUM.

BY FRANK ABBOTT, M. D., NEW YORK.

BEFORE THE DENTAL SOCIETY OF THE STATE OF NEW YORK.

You will excuse me if I talk to you as I would to a class of students, giving you the anatomy of the antrum, its functions, its diseases, their treatment, etc., etc. The antrum of Highmore, or maxillary sinus, is a cavity situated on either side of the nose in

the body of the superior maxillary bone. It varies in size from that of a small chestnut to a large hickory nut, in different persons. It is said by some to be an irregular, triangularly-shaped cavity, but I have so far failed to discover one single instance where the shape of an antrum would give me one idea of a triangle. There are some cases where horizontally it will be found to be extremely flat, others very deep; another will be deep from top to bottom, others again very shallow, etc. The floor of the antrum is the alveolar process which is immediately over the ends of the roots of the second bicuspid, first and second molar teeth. The roof of it is the floor of the orbit. The plate between the orbit and the antrum is perhaps one thirty-second of an inch in thickness in its thinnest place, but growing thicker as we near the border. The wall separating it from the nares is equally thin. Upon the outside, immediately over the second molar, or between the roots of the first and second molars, the wall is found very thin and easily punctured with a trocar. In the roof of the mouth, on either side, about three-fourths of an inch from the median line, is another point where the wall is thin and easily penetrated, the bone being about one-sixteenth of an inch in thickness. The antrum has two openings into the middle meatus of the nose. One is usually closed by the mucous membrane which lines it. The other is small, only sufficiently large to admit the end of an ordinary probe. When, however, from any cause, the mucous membrane becomes removed, the two openings are readily found, as may be seen in this skull. The same mucous membrane which lines the nares continues through these openings into the antrum, which is lined with it. We have made an opening into it in front, in order that its inner portion may be examined, the thickness of the nasal wall ascertained, etc. Passing an instrument into the antrum through this opening we find that it is in this instance an inch and a quarter in depth, and from the floor of the orbit to the alveolar process (the floor of the antrum) we find it about the same distance, viz., one and one-quarter inches. We have here, therefore, an antrum one and one-fourth inches in two directions. If we now pass the instrument in over the molar teeth, where we also have an opening, we find it com-

ing in contact with the nasal wall at the depth of half an inch. As I said before, it is lined with mucous membrane the same as the nose. Its function is supposed to be to hold a certain amount of air, the same as the frontal sinuses, which are located in the frontal bone above and a little to the right and left of the nose. In this skull they are opened and plainly seen. Not until comparatively recently has it been determined what the function of these sinuses really is. It is supposed that the air here contained, being of the same temperature of the body, mixes with the cold air as it is drawn through the nares on its way to the lungs, and heats it to a certain extent, so that when it reaches the lungs it is more agreeable to them than it otherwise would be, consequently conducive to health. It seems to be a rational explanation at least. You will see very readily, gentlemen, that a severe blow upon the cheek might injure the antrum, as the bony covering is very thin. You can see, also, how a dead tooth may produce disturbance from the protruding of its root through the floor of the antrum. The roots of the first and second molars, and often the second bicuspid, yes, the first bicuspid and canine even, are sometimes involved in an abscess of the antrum. Not long since I had a case under treatment where the lateral incisor had produced an abscess which had worked its way into this sinus. Abscess of the antrum is by far the most frequent disease to which it is subject, and in nearly every case a pulpless tooth is the cause. It is true an abscess may be produced, and is produced by other causes, such as, for instance, a very severe and long-continued coryza, or a severe inflammation of its lining mucous membrane produced by an injury, but such cases are comparatively rare. I presume there is not a person present who has not during a very severe cold in the head, had a feeling of distention well marked in the cheeks and forehead. This is caused by inflammation of the mucous membrane lining the maxillary and frontal sinuses. In such conditions it sometimes happens that the openings from the antrum to the nose become closed, and should the catarrh become chronic, perhaps permanently. Then it is that this sinus becomes filled with an exudation from its own mucous membrane, and unless it be evacuated ulceration will follow, and all the

distressing features of an abscess will result. If, however, it is evacuated before ulceration takes place, the case is called dropsy of the antrum. We have cases of this kind where the face swells to an enormous extent, and large lumps in different places are produced upon the face, which eventually discharge. I know of a gentleman who has an opening from the antrum through the cheek, discharging all the time, and the surgeon who has charge of the case is in a fearful quandary to know how to get rid of it. I know of another instance in which the case has been in the hands of a gentleman in this room, where he finds that the opening into the nose has been closed permanently. There has been such a continued inflammation of the mucous membrane in this case, that granulation has taken place, and closed up the naso-antral opening. Until that opening is re-established, he cannot allow the one which he has through the canal, where a tooth came out, to close up. Should he allow it to close, the sinus would fill, and the patient would have all the trials and tribulations attending an abscess of the antrum. We are told by writers upon this subject that it is usually the palatal roots of the molars which penetrate the floor of the antrum. I have examined many skulls for the study of this cavity, its diseases, etc., and in the great majority of them where any roots of the molar teeth were to be found protruding into it, they were the buccal. It is, however, a very easy matter to find any one, and sometimes even all the roots of a molar piercing the floor of this cavity. The reason for this lies in the fact that no two skulls are to be found in which the antrums are just alike. Some are large, some small; some are located high up, while others are down low; some are placed forward very prominently, others are to be found very far back. Sometimes in the same skull one antrum is found much higher up than the other, perhaps further back, or much larger. So that in the case of an abscess produced by what is called a dead tooth, it is almost impossible to determine the particular root involved. The first thing to determine is whether such an abscess exists. This leads us to a study of the symptoms, which are, first, a dull, heavy pain of long duration in the cheek of the affected side; second, tender-

ness upon pressure over the canine fossa and in the roof of the mouth upon that side; third, a bulging of the wall into the mouth; fourth, an unusual discharge from the nostrils of offensive matter; fifth, a crackling sound caused by the springing of the weakened wall when pressure is produced over the canine fossa. Having determined that an abscess of the antrum exists, we then look for the cause, and, as I have before remarked, we usually find a dead tooth upon that side of the upper jaw, which we at once conclude is the offending organ. This should at once be removed, and an opening into the antrum large enough to admit the point of a syringe, with considerable room to spare, at once effected through the socket nearest the front of the mouth. This is the anterior buccal root socket. I prefer to treat the abscess through this, because it is more convenient to get at. First wash out the antrum thoroughly with warm salt and water, using about a teaspoonful of salt to a glass, or half pint of water. If thrown in with slight force no irritation is produced mechanically, but instead this substance has a very soothing effect upon the inflamed mucous membrane. The large size of the opening through which the point of the syringe is passed admits of the discharge of the excess of material used as a dressing, and being a depending opening it allows the antrum to empty itself, a point always to be observed in the treatment of any disease of this sinus. After using the salt and water, if there is still an offensive odor, syringe with a solution of permanganate of potash and water, two grains to the ounce. This, aside from being the most effective deodorizer we have, is a very good antiseptic. Then syringe with a carbolic solution, one drachm to eight ounces of water, or with Listerine. Then make a plug by winding a bit of cotton around a sprig of broom-corn, first notching it a little so that the cotton will not slip off; dip this into carbolized oil—one part of carbolic acid to fifteen of oil of sweet almonds—then push it into the socket so that it enters the antrum, and in order to secure it tie the end of it which projects into the mouth to an adjoining tooth, or if the teeth are all out and a plate is worn, a notch should be cut in the side of the plate so that it may be fastened to that. These precautions are taken to prevent the plug

from being forced into the antrum, or from falling out. This dressing repeat once a day, and if an improvement is observed, make the plug a little smaller each day, letting the opening heal slowly for about ten days, when it will be nearly closed. Then leave the plug out altogether and let it close up. If no improvement is perceptible, however, after two or three dressings, syringe with a solution of iodine, carbolic acid and water. To the carbolic solution I gave you a few minutes since, add an ounce of tincture of iodine. Sometimes I find it necessary to use even a more powerful stimulant, such as the following: Zinc chloride, ten grains to an ounce of water. A saturated solution of chlorate of potash in water sometimes proves very beneficial. After using the above remedies for several days, if there is still a discharge of pus, give the patient sulphide of calcium, one-tenth of a grain pill, three times a day, after meals; this dose may be doubled if necessary. With this treatment I have never failed to get good results.

In case of an abscess, dropsy or any other disease of the antrum, where the teeth are not involved, the best treatment, in my judgment, is to make an opening through the mucous membrane and alveolus between the roots of the first and second molars, being careful that the opening extends to the floor of the antrum, so that by inclining the head slightly it will readily empty itself. Then treat as before described.

Another disease, fortunately seldom met with, is that of polypus. I have never yet seen a case, but should one present itself for my treatment I should, after becoming sure as to diagnosis, proceed to make an opening into the antrum (probably by removing a tooth) large enough to enable me to make a critical examination of its entire wall, and when I had ascertained the point to which the tumor was attached, with a sharp instrument, adapted to the case, detach it, cut or tear it in pieces and remove it. With the probability of a return of the tumor, I should take measures to keep the opening into the antrum open for some months, then, if no new growth was perceptible, allow it to close.

Reports of Society Meetings.

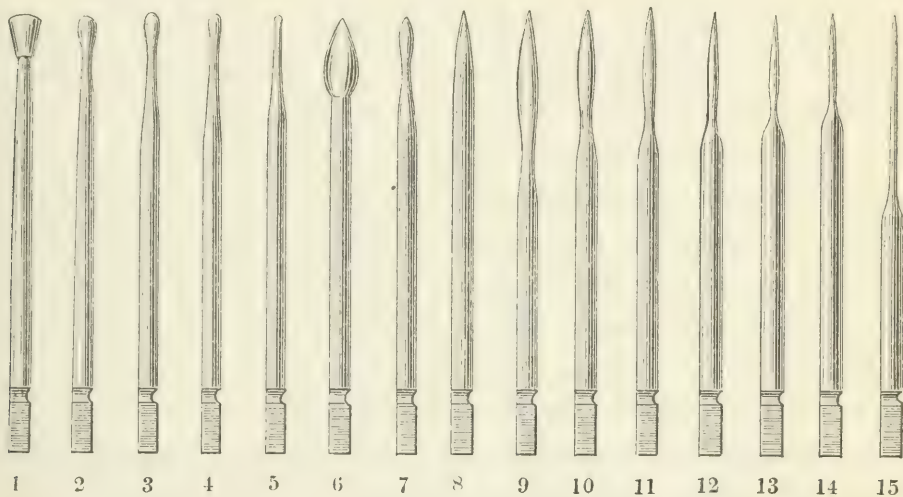
CENTRAL ASSOCIATION OF NORTHERN NEW JERSEY.

The regular monthly meeting of the Central Dental Association of Northern New Jersey, was held at the office of Dr. Sanger, Brick Church, N. J., on the evening of Thursday, November 22d, 1883.

The minutes of the previous meeting were read and approved.

Dr. Timme—read a paper upon “A New Method of Filling Teeth,” and afterwards exhibited to the members the various instruments referred to in the paper.

Dr. Timme's paper was published in the January Number of the *INDEPENDENT PRACTITIONER*, and a cut of the instruments exhibited is given below.—
Editor.



Dr. Bodecker—About a year ago, some gentlemen from Germany sent me the transactions of the local society at Frankfort-on-the-Main, in which *Dr. Herbst* explains the subject of *Dr. Timme's* paper. I have thought over this subject a great deal, as I believe it promises good results, but as I have not had the gold here, which is claimed to be a different preparation from that which we possess in this country, I have not experimented any. There were at that time two or three gentlemen in the meeting who spoke very highly of it, and who, I believe, have a very good standing in Europe. The

instruments that are passed around here are nothing but smooth burnishers, and Dr. H. claims that by this method he is able to fill a cavity in half the time that is required in the ordinary way. There is, however, one mistake in Dr. Timme's paper, and that is this. He believes that ordinary cohesive gold cannot be manipulated well with smooth points. I have used them for at least six or seven years, and whenever I get new points in a condition that they do not work satisfactorily, I grind them off with sand-paper. The only difficulty I find with smooth points is that they become covered with gold very easily, and when they do, I just rub them off again with sand-paper, and then obtain the very best results I can possibly wish for.

Dr. Osmon—As Dr. Atkinson is the father of the mallet, I would like to hear from him upon this question of the mallet *vs.* burnishing gold in a cavity.

Dr. Atkinson—Any effect is measured by the amount of energy brought to bear upon any packing instrument, and it matters not what that packing is done with; if it has the proper amount of force it will pack the gold until the gold is as resistive as the tooth substance, before any shock susceptible to the patient occurs; but the moment the energy is in excess of the amount necessary to pack the gold to the same degree of resistance of the tooth substance, whatever unexpended energy there is, the patient is cognizant of it. You all know I prefer a lead mallet, and would probably prefer a gold one if it were not for its expensiveness.

As to the paper, it is a following out of a plan introduced by Dr Shumway, of Plymouth, Mass., but instead of using steel points, he uses ivory points, and claims that he can fill a tooth with them in less time than he can with the mallet. I think our preferences are too personal to be of any considerable value if we were going to put it to vote; but if we comprehend the principle, and are willing to see which is best adapted to our own special organism, and understand all the laws of mechanics and chemistry involved in the filling of teeth, we need not be very strenuous about the method. The time was when I was a stickler for using the mallet always, and I think the world was

benefited by that, because my enthusiasm in it gave me such bull-headed confidence in the perception of the truth, that I had cheek enough to sow it everywhere with such religious fervor that it burned itself into the minds of the dental profession.

I don't know that there is anything that is really desirable in the way of speech-making, that would not be tedious upon this subject. I hold that the best method of teaching that has ever been devised is that of questions and answers, when we have a certain number of minds engaged in a like pursuit, all honestly desiring the truth for itself (we usually want the truth for *ourselves*), and when we really do want that, and have the humility to say that the truth is not mine, nor thine, but ours, and seek for it, then we can ask questions in such a manner as to call forth replies that will enable us to catch the principle involved in the questions much better than by long preaching.

Dr. Meeker—I don't quite get the idea in regard to this filling. Do I understand *Dr. Timme* that he uses the engine in filling the teeth with this material?

Dr. Timme—Yes, that is the idea.

Dr. Meeker—Will you explain to us the use of these instruments?

Dr. Timme—There are four or five instruments, according to the condition of cavity. The largest point is to press the gold against the walls first; then you keep the gold in position with an instrument until you get it perfectly firm, and after you get it solid against the walls begin with this instrument just as I described—it is No. 1. I find it very easy. Of course I have not very much experience with it, but the fillings I saw there were beautifully done. *Dr. Herbst's* brother did the most difficult work, filling the first and second bicuspid with ease, and I could not find anything to show the method would not be a good one.

Dr. Osmun—What is the peculiar method in the manufacture of this gold?

Dr. Timme—*Dr. Herbst* claims for it purity; nothing else.

Dr. Osmun—In thinking over this subject at short notice, it seems to me there must be one weak spot about it, and that is, getting it well under the undercut with those instruments. The fill-

ing must have some undercut, or shape of cavity of some kind, that it may withstand pressure, and if it is an ordinary cavity, that is one with nearly straight walls, there must be some weak spots. To my mind the gold cannot be thoroughly adapted to the walls of the cavity, and I fail to comprehend how he could get the gold solid with instruments that are run by the engine, with but light pressure, because if you run the engine rapidly, or even slowly, and put on much pressure, heat is generated, and the patient may make objections. He claims it is adapted to teeth of low organization. It seems to me that is the very kind of teeth it would be inappropriate to. Has Dr. Timme ever taken a tooth apart after it was filled, to see if it was a perfectly solid filling?

Dr. Timme—I did, and must say that the fillings seemed very solid, and the gold well impacted and fitted to all the inequalities of the cavity. It takes practice to do the work well, and I do not claim that I can do it perfectly. I would not trust myself to build up a tooth with it yet.

Dr. Osmun—How would you proceed with small proximal cavities?

Dr. Timme—Dr. Herbst does not use retaining pits, but makes slight undercuts if the cavity is not naturally retentive in shape. Then he proceeds upon the same general principle as in filling crown cavities.

Dr. Osmun—I should like to try it, but am afraid I am wedded to my sins.

Dr. Meeker—If you were building up an incisor, would you use those instruments?

Dr. Timme—No. I am afraid I cannot explain everything to you.

The President—Dr. Timme, in speaking of the instruments, will you call the numbers?

Dr. Timme—Numbers one, two, three and four are principally used for burnishing the surface, but they are also employed in laying the foundation of the filling, and securing the first layer of gold.

Number five is the principal instrument used, and there should be a number of sizes.

Number six may be used in impacting the gold into large angles of the cavity.

Numbers seven to fifteen are mainly used in approximal fillings. Number fifteen is simply a sewing needle cemented into a shaft that shall fit the engine. This is the most important of all the set, because it is mainly depended upon to see that there are no small unfilled pits or crevices.

The gold is used in the form of small cylinders, and unless it has been freshly made it may be annealed. The size of the point to be used will be indicated by the size and form of the cavity.

Dr. Osmun—If it is in order, I should like to ask Dr. Timme to give a clinic and invite the members of the Society to his office to witness it. I am interested in this subject, and if there is anything to be gotten out of it I would like to see it.

The President—Dr. Nicholi spoke very highly of this method. He was at first disgusted with it, but afterward he took it up again, and is now very much pleased with it. That is his statement.

Dr. Meeker—This paper of Dr. Timme's is very interesting. The only thing that I do not comprehend is how it is done. Of course if he will give a clinic I shall be pleased to attend it. I can very readily comprehend Dr. Shumway's method of using ivory points, because I have employed it frequently. I have a diamond disc, and sharpen up my instruments at nearly every filling. I never think of using a serrated plugger.

Dr. Atkinson—The statement that gold must be pure to be cohesive, is a mistake. Those who have experimented upon that have said that gold would be cohesive if it had even five per cent of silver in it, if it were only free from other impurities, and in that statement I have full confidence myself. I do not think cohesiveness always means pure gold; as high as ten per cent of silver may be in gold, and the foil or sheet be cohesive.

INCIDENTS OF OFFICE PRACTICE.

The President—A paper was read before this society by Dr. W. P. Richards, upon "Diseases of the Antrum and their treatment."

It was laid upon the table for discussion at this meeting. The subject is now in order.

Dr. Richards' paper was published in the December number of the *INDEPENDENT PRACTITIONER*.—*Editor*.

Dr. Atkinson—A drainage tube can only be useful when the natural drain is obstructed, and if you can reopen the natural passage it is the best drainage tube you can get. If the occlusion between the upper and middle, and lower and middle turbinated bones is complete, then you get dropsy of the antrum. If you do not succeed in opening the natural passages it may be advisable to use drainage tubes until such time as the parts return to a healthy condition, and in doing that you always want to make two openings, so as to put the syringe in one, and wash out of the other. We can always open between the roots of the teeth, say the second bicuspid and the first molar, and between the second and third molars, if they are all standing. Generally speaking, with proper care, an opening can be secured by the use of a plain spud put into the nostril, separating the occulting bones above and below.

When the bones are softened they must be removed in some way, and the best method is to remove them mechanically, when that is possible. There is a great deal of ambiguity in the minds of surgeons and dentists respecting the antrum. So far as disease thus located is concerned, its mechanical shape and locality is all that makes it different from any other mucous membrane, covering bones in the body, and you need not be at all afraid of it; all you have to do is to study well the anatomy of the parts. I have seen a great many openings made by surgeons directly into the chamber through the roof of the mouth, and always with poor results, and much discomfort to the patient during the healing process.

Dr. Bodecker—I have of late seen a large number of cases of disease of the antrum. Dr. Atkinson says it is not always necessary to use drainage tubes, but in some instances I have found them to be of the greatest value, and especially in those cases where by chronic catarrh the antral opening is partially obstructed, although there may not be an entire occlusion.

When the mucous membrane of the antrum is in a pathological condition there is usually more or less hypertrophy around that opening, and I usually make a drainage tube of platinum, to one end of which I solder a round shoulder, to prevent it from slipping into the antrum. If I have to make an opening, I generally make it very near the second bicuspid, or if that tooth is out, near the first molar, in the place where the second bicuspid came out ; then I fasten a clasp with a little movable projection around either the first molar or bicuspid. This projection answers two purposes: it prevents the entrance of food, and keeps it in its proper place without undue pressure. As a general rule, whenever I have used such drainage tubes, I have found that the disease abated in from three days to one week, especially if, before the tube is inserted, it is filled with very finely powdered iodoform, which by means of a syringe is blown into the antrum. But I have had one case which has given me a great deal of trouble. It was that of a young man about eighteen years of age, with a moderately good constitution. He came to me about two years ago to have his teeth filled. Upon examination I found that the root of the left upper first molar (the crown of which was broken off), would have to be removed, and consequently advised its extraction. A few days after the removal of the root, the patient told me that at times he observed great quantities of pus entering his mouth from the place where the root had been removed. I then examined it and found the antrum open and in a state of inflammation. I inserted a drainage tube and tried to syringe salt water through the antrum into the nose, but with no success, for I found that the naso-antral opening was completely obliterated. After further inquiry the young man told me that he had been suffering severely from hay fever for several years, and that during the whole winter he had been troubled with nasal catarrh, which I believe was the origin of the trouble in the antrum. After several weeks' treatment I found to my surprise that the communication of the antrum with the nose was not present yet, and as at that time there was considerable catarrh of the nasal cavity, I advised the patient to consult his physician about it. The nasal catarrh was soon cured, but the

naso-antral opening remained closed as in the beginning of the treatment, which consisted of injections of a three per cent solution of boracic acid in water until the liquid run off clear, which was followed by either a solution of chloride of zinc, ten grains to one ounce of water, or a solution of nitrate of silver of the same strength. This treatment was continued every day for about two months, when I advised the patient to submit to the operation of having the naso-antral opening made by means of an instrument. The mother would not give her consent, in consequence of which the patient to-day is in precisely the same condition as in the beginning of the treatment. A few months ago I presented him at the clinic of the First District Dental Society of New York.

Dr. Richards—Do you always use metal tubes ?

Dr. Bodecker—If I intend them to remain for any great length of time I prefer platinum tubes. I never tried rubber.

Dr. Richards—Is there any irritation ?

Dr. Bodecker—I have never seen any irritation. Another good point about these tubes is that you can find out in a minute whether the nasal opening is obstructed, for if it is, when the syringe fits the drainage tube perfectly, no liquid is regurgitated from the antrum until the syringe is withdrawn from the tube. If on the other hand the opening is present, the liquid will enter the nasal cavity.

Dr. Richards—Do you not find a great advantage in the use of these drainage tubes ?

Dr. Bodecker—Yes. The more chronic the case is, the more necessary I regard the use of the drainage tube.

Under the head of "miscellaneous business" Dr. Watkins exhibited a diagram used in recording operations in the mouth, and in making examinations. Also a new form of tooth-brush, the handle of which is so shaped as to facilitate the cleaning of the posterior teeth.

Dr. Timme showed a new drop bottle.

Dr. Idel exhibited a switch-board, intended for use in deflecting the electric current, from the motor to the electric mallet.

Upon motion the society adjourned for one month.

Correspondence.

PALAZZO MAROTTI, 172 VIA NAZIONALE,
ROME, ITALY, December 15th, 1883.

Editor Independent Practitioner:

Will you allow me to call your attention, in the INDEPENDENT PRACTITIONER, to a subject which I think the members of our profession sadly neglect to mention in their discussions and writings. My attention has oftentimes been called to it while visiting my brother dentists.

CLEANLINESS.

Every surgeon knows that success in his operations means perfect cleanliness, and a proper use of antiseptics. I have had the honor, in years past, to be called to assist the late illustrious Dr. J. Marion Sims, in many operations, and I was struck with his extreme cleanliness and careful use of carbolic acid. I mention this because I believe many dental surgeons are careless or ignorant of their duty to the innocent patients intrusted to their care.

It has been my custom for a long time to cleanse every instrument I employ in carbolized water before using again, and also to wash my hands in carbolized water before touching a second patient. I fear that many an innocent person has suffered from the effects of particles of poisonous matter left on unclean instruments used in the mouths of diseased patients, who had preceded them in the dental chair.

If syphilis may be communicated by a kiss, may it not as effectually be transferred on the point of an unclean instrument?

May it not also be transferred from one patient to another, by using a mouth mirror which has not been duly carbolized? In short, do dentists as a rule exercise that carefulness in carbolizing every instrument which is essential to proper cleanliness? My observations lead me to answer, NO! I believe the use of uncarbolyzed instruments in probing the roots of dead teeth has often induced the very difficulty the unsuspecting dentist wished to avoid. Clean instruments, clean napkins, and clean hands, pay a large percentage on the investment, and the dividend will be cheerfully paid

by appreciative ladies and gentlemen. I owe an everlasting debt of gratitude to the great Dr. J. Marion Sims, for the hints he gave me years ago on the value of thorough cleanliness, and the use of carbolized water. If others will only experience a part of the satisfaction his hints have given me, then these lines will prove to be a word to the wise.

Respectfully yours,

J. G. VAN MARTER, A. B., D. D. S.

THE "M. D. S."

NO. 15 CEDAR STREET,
NEWARK, N. J., Jan. 15, 1884.

Editor Independent Practitioner :

There has been some wild criticism, by some of my New York friends, concerning my remarks at Niagara in reference to the "M. D. S." law in that State. The only thing I said was that the existence of such a law in New York was made the excuse for an imitation one in New Jersey.

The bill before our legislature last year, giving authority to three men to confer a State title, was opposed, and fortunately did not become a law. It was again introduced this year, but I am just informed has been withdrawn, and another substituted. The substitute prohibits any one who is not a graduate of a reputable Dental College, from commencing the practice of dentistry in the State.

New Jersey is making progress. It is said the New York law was enacted, some fifteen years ago, for the purpose of giving some old and worthy practitioners a reputable standing. Would it not be well to complete the list, and then repeal the law, and thus place the State Society in harmony with the sentiment of the dental profession?

Very truly yours,

C. S. STOCKTON.

Editorial.

CHLORIDE OF ZINC.

The Professor of Special Surgery to whose lectures we listened in college days, had less faith in the virtues of medicines than most men. He was accustomed to say in his peculiar, drawling, but sententious manner: "Gentlemen, when you enter upon practice don't multiply remedies. If a cure of disease was ever wrought directly by medicine, it was probably done by iodide of potassium in a case of syphilis. If I were to order a new medicine case, I should, I think, have it in five bottles. In the first I would place—morphia; in the second—atropia; in the third—iodide of potassium; in the fourth—well, I think I would put in a little more iodide of potassium; in the fifth—gentlemen, I have made the case too large. I don't know what I could put in the fifth bottle."

For most of the cases that fall under the care of the average dentist, we are strongly inclined to give to chloride of zinc the same prominence that the old Professor gave to iodide of potassium. Its action is so beneficent, though at times somewhat severe, that we would advise the young practitioner to put into the empty bottle "a little more chloride of zinc."

It is prepared by dissolving zinc, or its oxide or carbonate, in hydrochloric acid, and then filtering the solution, and evaporating it to dryness. It is a grayish-white, semi-transparent, and gelatinous substance, but if fully dried becomes solid and pulverizable. It deliquesces on exposure to the air, is soluble in water, alcohol, and ether, and unites with both albumen and gelatine. It has an acid and metallic taste (Stillé). It is a corrosive agent, but differs from most such by its absence of mischievous effects. It is not readily absorbed, and if it be, it will do no injury. As a topical application it is astringent, it is a deodorizer and a disinfectant, but its principal virtue is its astonishing power in promoting healthy granulations in stagnating tissues. In all cases of chronic inflammation of the gums, in pyorrhea alveolaris, and as a dressing for indolent wounds after surgical operations, we have found it extremely useful. As a topical application about the gingival margins after the

removal of tartar, it is invaluable. In the deep pockets beneath the gum, caused by calcareous or other deposits, that are not of a catarrhal character, we have found nothing to quite take its place.

In the condition now commonly denominated pyorrhea alveolaris, when there is denudation and separation of the gum from the teeth, an absorption or destruction of the alveolar border so that a probe can be thrust for a greater or less distance under the gum, with a constant discharge of pus, we have not infrequently brought about a cure by the use of chloride of zinc alone. It is better, however, to give surgical assistance first, by scraping the edges of the process, and this may profitably be followed by the use of thorough antiseptics until the discharge is stopped. At this point, if all foreign accumulations be removed from the tooth, there is no dressing that has yielded better results for the after treatment than chloride of zinc. The gum about the cervical portion of the tooth in such cases is almost invariably turgid and swollen, so that to the casual observer there would seem to be no apparent denudation; but when the inflammation has subsided it will be found that the tissue shrinks away sufficiently to expose a considerable portion of the root. If this tumefied tissue be too thoroughly cauterized, there will be an entire destruction of that which under more judicious treatment might possibly be retained and restored to normal function. The principal aim of the dentist in such cases, should be to retain as much of a "pocket" as possible, for without something of this kind there can be no restoration of that which has been lost. When the breaking down of tissue has ceased, and diseased action has reached a limit, the process of repair should at once commence, but this cannot be secured without something to stand as a protector for the protoplasmic matter which may be deposited. New granulations cannot be added unless they are secured from foreign interference. Hence the necessity for the preservation of the sheltering gum.

Chloride of zinc in dilution, is sufficiently escharotic to cauterize the inflamed surfaces without destroying them. It is such a powerful stimulant that, if all irritating causes be removed, new granulations almost invariably succeed its employment.

In pyorrhea alveolaris, after the removal of all deposits, the edges of the diseased alveolus may be thoroughly saturated with aromatic sulphuric acid, which will not attack the soft tissues, and the case allowed to rest for a few days. If then the discharge has ceased, the treatment with chloride of zinc may be commenced. If there still remains any trace of discharge, it is an indication that some of the diseased parts have not been reached, and a thorough exploration should again be made for deposits and diseased bone, and the sulphuric acid once more be resorted to. But if there be no longer any discharge, a solution of chloride of zinc, of perhaps ten grains to the ounce of water, may be injected beneath the gums, and this repeated two or three times a week, until a cure has been effected. A little experience will soon teach one the proper strength of the solution to be used. Some cases demand more severe treatment than others. A special syringe should be kept for the use of this remedy, and that the point may not become obstructed, it may be allowed to remain point downward in a glass partly filled with water.

Chloride of zinc is very useful in catarrhal conditions of the maxillary sinus, or antrum of Highmore. It will be necessary, however, to use care in its employment, and to inject it considerably dilute, as intense pain follows the use of a solution too concentrated. One of the most obstinate cases of ulceration of the mucous membrane of this sinus which ever come under our care, yielded to a solution of about twenty grains to the ounce, after almost everything else had failed, but the patient will not soon forget its application. One dose was enough for both him and the disease.

Chloride of zinc is also one of the best obtundents of sensitive dentine that we possess, although its first application is liable to be irritating. A drop of the deliquescent fluid is placed in the cavity, which has previously been thoroughly dried, and allowed to remain for four or five minutes. When the obtunded layer of dentine shall have been removed, a fresh application will be necessary.

A NATIONAL DENTAL SOCIETY.

There is much in the idea of one central association that shall be the recognized head of the profession in this country, that com-

mends it to the consideration of every progressive man. England has such an one, and it is argued why should not we? Why cannot all the dentists of America unite and hand in their allegiance to such an organization? Much was expected in certain quarters from the National Association that was founded a few years since. That organization has not, however, fulfilled the hopes of its founders, and is already in a moribund condition. There were original elements in it that were prejudicial to its success. There was a suspicion of ulterior objects, and that there were dull personal axes to be ground to a fine edge. Besides, it was too comprehensive in its character, and too broad for practicability. A compact, easy working national society, is not as feasible in this country as in England, because of our great extent of territory, and the consequent diversity of interests and characteristics in the several great sections. Eastern men and western men, northern men and southern men, have certain sectional peculiarities that, in the transaction of the business affairs of such a society, do not easily harmonize. We may deprecate this, and assert that it should not be, but the plain facts of the case are that they do exist, and this must be taken into consideration whenever members of the whole profession are to be brought into association.

Then, again, climatic influences cannot be ignored. The northern dentist is most free to attend the necessarily lengthened sessions of a national society during his vacation, and that is in mid-summer. He naturally seeks a place where the temperature is not too high, and no great number of them can be persuaded to attend a meeting held in the Southern States during that season. Southern men complain if the meetings be not held with them occasionally, and not unnaturally accuse their brethren of sectionalism when this is declined, and it is this climatic obstacle that has been the chief hinderance to the representation of all parts of the country in the American Dental Association. No society has ever, in this country, made such a record as has this, and to-day it seems to be as near the typical national association as it is at present practical to attain. But it is mainly made up of delegates and members from but a few of the States. The Pacific States are practically

unrepresented, and it has but few members from the extreme south.

The Southern Dental Association is doing excellent work, and that organization should be sustained. There are enough of good men who will but occasionally visit the American Association to form an excellent society. Let the southern men then continue their meetings, and when a society shall have been formed upon the Pacific slope that shall quite cover that ground, the profession will be comparatively well organized, and if then the best men of each of the societies will, as convenience permits, attend the meetings of the others, fraternal intercourse will be kept up, and the general spread of professional intelligence will be assured.

The American Dental Association should retain its national character, and should be recognized as the representative head of dentistry in America, but it should not attempt too much. The country is too large to secure a general attendance upon the meetings of any one society. There is no reason why a Southern and a Pacific society should not become accepted representatives of the profession in each of those sections.

The founding of a National Museum at Washington, which shall be acknowledged by the government, and shall receive contributions, not only from the profession at large but from the army and navy of the country, is a thing to be earnestly desired. But such an institution need not be under the fostering care of any national society. Indeed, there are some strong reasons why it should, like the Medical Museum, be under the care of the general government, and be directly in charge of some government official. Its permanence would be thereby assured, and the co-operation of those who can best serve its interests would be secured. It might even be a branch of the medical department of the army and navy, but certainly the countenance and assistance of that bureau should be gained. We believe that steps have already been taken and a movement inaugurated which will, we hope, culminate in the success of an object fraught with so much of good to dentistry and to the world.

FERMENTATION IN THE HUMAN MOUTH.

We need not urge every physiologist among the readers of the *INDEPENDENT PRACTITIONER*, to carefully read Dr. Miller's papers on Fermentation in the Human Mouth. There are some new and interesting facts given this month, that for the first time harmonize known conditions with demonstrated physiological law. The existence of sugar at nearly all times in the oral cavity naturally follows from the presence of starch and the diastatic action of ptyaline, and its conversion into an acid by means of a proper ferment is a natural consequence. That ferment Dr. Miller seems to have demonstrated. Softened dentine will, as he says, take up the sugar with the ferment as would a sponge, and within the mass the acid conversion will go on, with the possible effect of extending the decalcification of tooth tissue. It remains for the succeeding papers to determine the action of this acid upon dentine and the analysis, of it and the chapter on the physiology of the mouth will be looked for with interest.

The supporters of the acid theory of caries have always claimed that the testing of the oral secretions is no sure indication of the reaction on the teeth, because the acids were most energetic while "nascent." Dr. Miller gives a more reasonable explanation of the puerility of the usual saliva tests. It would be gratifying to know whether any such fungus may be found in the mouths of such animals as are not subject to tooth caries, but whose food is, to a greater or less extent, amylaceous.

The record of experiments in this number shows them to have been conducted with faithful care as to details, and in a purely scientific manner, and they are related with a directness and simplicity that reminds one strongly of Tyndall. We are of the opinion that, from the time of the publication of this series of papers, the study of oral physiology will proceed in a different direction, and that these discoveries will mark a new era in dental etiology. For the first time we have a definitely determined point of departure, and an established law of action under which we may with some hope of certainty trace the progress of dental diseases.

GUM GUILLOTINE FORCEPS vs. GUM SCISSORS.

The number of the *INDEPENDENT PRACTITIONER* for November last, gave an account and cut of "Abbott's Scissors" for excising the gum over erupting teeth. The number for January contained a letter from Dr. L. D. Shepard, giving a description of Woodhouse's Gum Guillotine Forceps, an instrument of English origin, devised two years or more ago. A letter from Dr. W. H. Eames, of St. Louis, gives an account of an instrument intended for the same purpose, and not unlike the other two in principle. All three of these seem to have been original devices, but the priority of invention certainly seems to be with the St. Louis instrument. This was, Dr. Eames says, invented by Dr. H. S. Chase, eight or nine years ago, and a description and cut of it were published in the *Missouri Dental Journal* at the time. Dr. Eames has in his possession one of the instruments, and sends us full drawings and description of it.

In the advertisement of Codman & Shurtleff, of Boston, in this number, will be found a cut of an instrument which they manufacture and have on sale. In answer to a letter of inquiry, they state that they make no claim to originality of invention for their Gum Cutter. It was made from the description of an English instrument, which they had never seen. It more nearly resembles that of Dr. Chase, than that of Woodhouse, or Abbott.

The want of such an instrument has long been felt, and it is a little singular that so many different forms should have been devised by men so widely separated. It indicates that the need of it was as universal as would seem to be the supply.

WOMAN.

The admirable address of Dr. N. W. Kingsley, before the American Academy of Dental Science in Boston, will appear in full in the March Number of the *INDEPENDENT PRACTITIONER*.

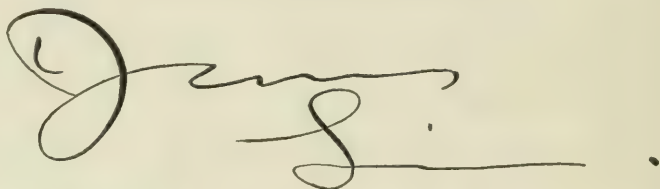
There was not sufficient space in this number for the whole of it, and it would be an injustice to both the author and the reader to divide it.

THE POT *versus* THE KETTLE.

Editor Barrett has a type-writer. We know this because we saw it in his office. He uses it, sometimes, whereat every one who has been favored with a letter from our neighbor should rejoice—not, however, because of the letter as much as the comforting assurance that in his attempt to decipher it he is not imperiling his immortal soul. The purchase of the type-writer is directly due to the appeal of one sorely tried. Like the good man that he is, he went right off and bought one.—*Odontographic Journal*.

Just to show how black is the bottom of this reproaching pot, we present a *fac simile* of the chirography—if such we may call it—of the editor of the *Odontographic*. Just look at the signature. It is a *Line*, sure enough, but not a straight line, although approaching it as nearly as the indirectness of the signer would permit.

Touch up the inclosed
little as possible and
straighten, and return



There is a French-man within a stone's throw of the publication office of the *Odontographic*, who avers that his first infraction of—we have forgotten whether it was the third or seventh commandment of the Decalogue, perhaps it was both—was directly due to an attempt to decipher some of the sprawling, back-handed, illegible hieroglyphics of Editor Line.

BIBLIOGRAPHICAL.

Several books, pamphlets, and new medical and other journals are upon our table, waiting notice. They shall have due attention as soon as time permits their proper examination.

CELLULOID.

Dentures made of this material when once broken are not easily mended. If a new piece be put in under heat and pressure, it will hold for a time, and then it separates. The only way to get approximate security in attaching a new piece, is to accurately fit it into a groove or dove-tail, soften the edges of both the plate and the new piece with a saturated camphor solution, and then apply pressure while the piece is cold, until a union between the parts is secured. After this the heat may be applied, and the piece pressed home.

But a better and surer way to repair a celluloid plate is to run plaster of paris into the palatal portion, and then cover the lingual and buccal surfaces with the thin sheet wax used in the manufacture of artificial flowers, after which it is invested in the flask, placed in the packing machine and heated until the old plate can be easily removed from the teeth. A new blank is then packed into this mould. The sheet wax referred to gives about the added thickness necessary for finishing. Of course more can be added in any place if needed.

CELLULOID HANDLES FOR INSTRUMENTS.

The cut of the instruments in Dr. St. Geo. Elliott's article gives but a very imperfect idea of their beauty. Nothing of the kind that we have ever seen approaches the tinted and mottled celluloid in appearance, and a set of pluggers or excavators finished after Dr. Elliott's plan is a thing of beauty.

A CHANGE.

Dr. Thomas Fillebrown, of Portland, Maine, has removed to Boston, and may henceforth be found at Hotel Bristol, Boylston and Clarendon Streets. He has been elected to the chair in Harvard lately occupied by Dr. L. D. Shepard, whose professional engagements no longer permit him to fulfill the duties of the position. Prof. Fillebrown is a worthy successor to one who has so long and ably filled the chair of Operative Dentistry at Harvard.

Obituary.

DR. W. H. LONG.

DIED.—At Parsons, Kansas, December 15, 1883, of peritonitis, Dr. William Herbert Long, aged 28 years.

How truly has it been said, "Death borders upon our birth and our cradle stands in the grave," and how vividly was it brought to our mind in learning of the untimely taking away of our friend W. H. Long.

Dr. Long was born near Hagerstown, Maryland, in the year 1855. In 1874 he commenced the study of dentistry, in the office of Dr. J. E. Swallow, of Hagerstown, where he remained until 1878. Upon the completion of his studies he sought about him for a point from which to begin his life's work. In the full vigor of youth he came west, and located in the beautiful town of Parsons, Kansas, where he remained to the time of his death, enjoying from the first the confidence of its best citizens. The writer knew him well, and esteemed him as one who gave promise of much good to his chosen profession in years to come. Dignified though unassuming in his manner, and possessing a well cultivated mind, he was a most entertaining companion, and we shall always look back with profit upon the many pleasant hours we have spent with him. Placing the dignity of his profession above all other considerations, he did everything in his power to maintain it, very frequently to his pecuniary detriment. As an operator he was careful and painstaking, and leaves a record for superiority rarely enjoyed by one so young. In his premature death the dental profession of the West sustains a loss it could illly afford. The suffering during his fatal illness was excruciating to the last, but was borne with that firmness and fortitude which marks the perfect man. He leaves, besides other relatives, a faithful, loving young wife, to whom goes out the sympathy of all who knew him.

IRVINE.

Current News and Opinion.

THE TEETH OF THE FUTURE.

In an able address before the British Dental Association, at its meeting at Plymouth, its President, Mr. Spence Bate, F. R. S., has drawn attention to some remarkable features which it may be well for the profession to study. We have not the necessary space for the entire address, but while we acknowledge the eminence of the authority, we are not prepared to give credence to all his so-called facts, or agree with him in his deductions until he has been further substantiated by other observers.—*Editor.*

“In the teeth of the Esquimaux, the Red Indians and the natives of Ashantee, as well as those found in the ancient barrows of England, the so-called inter-globular spaces, seen so frequently in sections of modern teeth, appear not to exist; nor, indeed, are they to be detected in the dentition of the best developed structures of the modern European. Not only is the dentine getting deteriorated, but the enamel would seem likewise to be undergoing a modification, becoming too opaque. In addition to the histological changes, the external form and character of the teeth are sustaining an alteration. This seems to be in relation to an important feature in the history of their evolution. The tendency of the cranium to develop at the expense of the face and jaws is seen to occur as we ascend the scale of the vertebrated series of animals. Owing to this atrophy of the jaws, the proper space for the full play and development of the normal teeth would seem not to be available. At birth the bones are not sufficiently grown to receive the teeth in their normal arch; and, as in the human mouth, the pre-maxillary bones are firmly united a short time after birth, it follows that the posterior part of the jaw is the only place where growth can occur. Any delay in the development and consolidation of the symphysis must have the effect of contracting the space required for the teeth at this site. In the course of vertebrate evolution there is a marked tendency for teeth to disappear. The lower vertebrates have four molars on each side in each jaw, the higher have three, while in man the number is reduced to two.”

THERAPEUTIC AGENTS FOR THE PROMOTION OF OSSEOUS DEVELOPMENT.

Dr. J. C. Thorowgood read a paper before the Odontological Society of Great Britain, on the above subject. He pointed out that the composition of the bones and the teeth was practically identical, the latter having only a larger proportion of inorganic matter. The analysis showed that a considerable quantity of mineral food was required for the nutrition of these tissues. The mere administration of the necessary lime-salts was, however, by no means the only thing to be considered in striving to improve osseous development; thus in rickets, with an evident deficiency of lime in the bones there was an elimination of from four to six times the normal amount of lime-salts in the urine, showing that the fault was in the process of elimination. For the dentist, the most serious condition in children was one of acid dyspepsia; the child's breath had a sour smell; tongue furred, with red papillae showing through; appetite often voracious, and bowels confined or irregular. To give a big-bellied, pale-faced child in this condition, phosphate of lime and iron, would only make him more uncomfortable; but give him alkaline aperients, regulate his diet, cutting off excess of sugar and starch, order exercise, salt-water baths, etc., and then administer the specific remedies indicated. Of these the most useful were the soluble hypophosphite of lime, and the chloride of calcium; either of these might be given in doses of two or three grains, in glycerine and water. The lactophosphate of lime was also a valuable remedy. Diet was most important. The child must be taught to eat slowly; brown bread and Scotch oatmeal would suit some children, and "seconds" flour was preferable to the "best white." By this line of treatment the child would be brought into a condition in which the dental surgeon could work on the decayed teeth with some prospect of his work remaining a lasting proof of his skill.— *Weekly Medical Review*.

ZONULAR CATARACT WITH CHARACTERISTIC TEETH.

The characteristic teeth seen in zonular cataract resemble those seen in interstitial keratitis caused by hereditary syphilis. Zonular

cataract has no connection with this disease. Associated with interstitial keratitis there are always peculiar physiognomical changes, but in quite half the cases these are of a very subtle nature, and difficult to describe. We see excellently formed teeth with no notches in the incisors, only a suspicious roundness at the cutting edges, and as often as not the bridge of the nose is well formed, but there is a peculiar softness and movability at the junction of the cartilage with the bone. We suspect eye or ear disease on seeing such patients approach us at a few yards. In zonular cataract there are no peculiarities about the features, and it is difficult to see what the connection may be of peculiar teeth with this abnormality in the eyes. In hereditary syphilis the teeth fall short of full development, in common often with many other structures, and eye diseases in relation with this occur up to late periods of growth. Zonular cataract is either congenital or develops only in very early life.—*Australian Medical Journal*.

UNITS FOR MEASUREMENTS.

The metrical unit for length is the *meter*; the ten-millionth part of the distance from the earth's equator to the pole.

The unit of bulk is the *liter*; it is the cube of a decimeter side.

The unit of weight is the *gramme*; the weight of a cubic centimeter of distilled water at 40° Fahrenheit.

The unit of force is the *kilogram-meter*; the force required to raise one kilogram weight one meter high.

The unit of electric resistance is the *ohm*; it is the resistance which a current undergoes when passing through a column of mercury one meter long and one square millimeter in section, at the freezing point of water.

The unit of electro-motive force is the *volt*; it is the amount of electro-motive force produced by one Daniel cell.

The unit of electrical intensity is the *ampere*; it is the current produced by one volt through a resistance of one ohm.

The unit of quantity of current is the *calamb*; it is the quantity of electricity given by one ampere in one second.

UNIVERSITY OF BUFFALO.

The spring term of the medical department of the University of Buffalo, will open immediately after the close of the winter term, and will continue eight weeks. Special courses of instruction have been arranged in most of the important departments, and the usual regular clinics will be held at the College, and at the General Hospital. The dissecting rooms will be open during the entire session, and the demonstrators will be in attendance daily. Arrangements have been made whereby students may attend the lectures of any special chair by paying the fee of the professor.

FACULTY.

| | |
|--|---|
| E. V. Stoddard, M. D., Materia Medica and Therapeutics. | Charles Cary, M. D., General Anatomy. |
| M. D. Mann, M. D., Gynæcology. | R. A. Witthaus, M. D., Chemistry. |
| F. W. Abbott, M. D., Otology. | Roswell Park, M. D., General Surgery. |
| A. M. Barker, M. D., Diseases of Children. | Lucien Howe, M. D., Ophthalmology. |
| J. W. Keene, M. D., Obstetrics. | Bernard Bartow, M. D., Orthopedic Surgery. |
| Frederick Peterson, M. D., Pathological Anatomy. | W. C. Barrett, M. D., Oral Diseases. |
| D. F. McPherson, M. D., Minor Surgery. | John H. Pryor, M. D., Physical Diagnosis. |
| Eli H. Long, M. D., Special Therapeutics. | Julius Pohlman, M. D., Physiology. |
| Frank A. Vandenburg, Applied Chemistry. | |

NAPHTHALINE AS AN ANTISEPTIC.

In consequence of the disagreeable action of iodoform on the organism, experiments have lately been made to discover an antiseptic without its objectionable properties. Prof. Fischer, of Strassburg, announces the discovery of the desired article in naphthaline which can be used where iodoform was applied, without producing any constitutional action. It has been demonstrated that naphthaline is an equally powerful antiseptic, but it has a less disagreeable odor. Its application produces a slight pain of short duration.—*Centralblatt fuer Chirurgie.*

TRANSACTIONS (N. Y.) FOR 1882-83.

Editor Independent Practitioner :

Permit us through your journal to inform "whom it may concern" that the transactions of the Dental Society of the State of New York for 1882 and 1883 (one volume), have been published, and are ready for distribution.

The committee of publication has decided to issue them as follows, and will do so forthwith :

First. To district society members, through the secretaries of the several district societies.

Second. To permanent members, honorary members, masters of dental surgery not residents of this State, editors of dental journals, and State and national societies expressing their desire to exchange, through the Secretary of the Dental Society of the State of New York.

The errors to be found here and there throughout the volume are such as the reader will be able to correct at a glance, without any special directions from the committee.

Yours, etc.,

J. EDW. LINE,
Chairman Com. of Pub.

ROCHESTER, N. Y., Jan. 15th, 1884.

RUSSIAN TEETH.

A Russian medical journal contains two reports on the frequency of caries in Russia. An examination of six hundred and fifty soldiers revealed the fact that two hundred and fifty-eight, almost forty per cent. suffered with carious teeth. In these cases the proportion of the diseased teeth in the upper and lower jaws was as two to three. The third molar was affected in about half the number of cases reported, while the incisor and canine teeth suffered least; the teeth of the right side had more vitality than those of the left. The other examination was made of the teeth of four hundred students in St. Petersburg. Of this number only twenty-eight per cent. were the happy possessors of healthy teeth. In two hundred and eighty-

nine cases the molars were carious, the third molar in two hundred and forty-nine instances. It is stated by Prof. Skliffassorosky that eighty per cent. of the inhabitants of St. Petersburg have carious teeth. It seems that in Russia caries is just twice as prevalent in cities as in the country.—*Monatschrift des Vereins Deutscher Zahnkuenstler*.

DISSOLUTION.

The firm of F. W. Leonard & Co. has been dissolved, and a new organization has been formed; The American Dental Manufacturing Company. Their place of business is upon Broadway, corner of 37th Street, New York. The announcement of the change will be found in our advertising pages, to which we refer readers for full particulars.

THE AMERICAN MONTHLY MICROSCOPICAL JOURNAL.

During the past year this excellent journal has been published by S. E. Cassino & Co. of Boston. With the beginning of 1884, its editor, Romyn Hitchcock, F. R. M. S., resumes its full management and publication, and it will hereafter be regularly issued by him from Washington, D. C. It is but one dollar per year, and every microscopist should be a subscriber to it.

CELLULOID DISKS.

The S. S. White Dental Manufacturing Co. are manufacturers of a wonderfully useful disk of celluloid, charged with corundum. They are exceedingly thin and flexible, and nicely adapted for polishing approximal fillings, especially in cases where disks of emery or sand-paper cannot be used on account of too much moisture, or lack of space.

C. E. F.

REMOVED.

The New York Post Graduate Medical School has been compelled to move from its present quarters to more commodious ones, and will, on or about February 1st, 1884, occupy its new apartments in East 20th Street.

The new building is of sufficient proportions to admit of their combining hospital with school advantages.

FOR 1884.

Remittances for the INDEPENDENT PRACTITIONER come daily pouring in, and the treasurer hereby expresses his thanks for the prompt response to the slips enclosed in the December issue. Many complimentary letters have also come to us, freighted with good wishes for the success of our journal. We are tempted to publish just one as a "specimen;" a liberty which the good nature of the writer will, we trust, pardon.

C. E. F.

AIKEN, S. C., Jan. 2, 1884.

Dr. C. E. Francis:

DEAR SIR,—Find enclosed postal note for \$2.50, for the continuation of my subscription to THE INDEPENDENT PRACTITIONER. It is a journal that improves upon acquaintance. I now enjoy its company, being edified and improved by its worthy articles. I wish it a prosperous New Year.

Yours truly,

B. H. TEAGUE.

VALUE OF ARTIFICIAL RESPIRATION.

In the *Columbus Medical Journal* for January, may be found an account of a man who swallowed at one time sixteen grains of morphine. No stomach pump could be procured, nor was it possible to induce vomiting. Therefore the whole of the drug was eliminated through the emunctories. Voluntary respiration soon ceased entirely, and for twelve and one-half hours the man was kept alive solely by artificial respiration, when he had so far recovered from the action of the drug that voluntary action was restored, and he finally recovered.

REMOVAL.

Ry reference to their advertisement it will be seen that Edward Rowan & Co., formerly of Jersey City, have removed their whole establishment to 196 Third Avenue, New York City. Their facilities for the manufacture and sale of dental goods are largely increased, and they hope and expect that this fact will be fully appreciated by their patrons.

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LISTERINE

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DOSE.—One teaspoonful three or more times a day (as indicated). As a local application to ulcers, wounds and abscesses, or as a gargle, mouth-wash, inhalant or injection, it can be used *ad libitum*, diluted as desired.

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Cohesive, Malleable and White.

The most honest objection heretofore made to amalgam is that it turns black and is liable to stain, disfigure and even destroy tooth structure. *This need not be*; for there are metals which, combined and amalgamated with *chemically pure mercury*, do not oxidize or tarnish, even under the most adverse circumstances. And, if previous to use, it has been ascertained that the salts (oxides) of the metals are not soluble in the menstruum circulating in the tooth they will not, *cannot* affect the tooth structure.



Heat expands metallic substances. When an alloy has been amalgamated in the palm of the hand the operator will observe that heat is evolved. Now, if this is allowed to depart (said Dr. Whildon Foster, of Baltimore, in criticism of an essay by us), if this heat is allowed to depart previous to its introduction into the cavity, it will not then contract; for crystallization at low temperature is not a process of contraction. A familiar example is the freezing of water and the consequent bulging and bursting of the containing vessel or pipe.

The following named gentlemen endorse it, and we use their names by permission:

| | |
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| Dr. JOHN B. RICH,.....NEW YORK. | Dr. E. PARMLEY BROWN,....FLUSHING, L. I. |
| Dr. W. D. TENISON,....." " | Dr. J. BOND LITTIG,.....NEW YORK. |
| Dr. C. S. STOCKTON,.....NEWARK, N. J. | Dr. WM. F. DAVENPORT,....." " |

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When amalgamating this alloy the best results are obtained when the minimum amount of Mercury is used, 2 gr. of Mercury to 6 gr. of Alloy.

When used in these proportions it has a remarkably fine grain, packs very close, takes and retains a beautiful white finish, which is a property unknown in other amalgams. **It contains the five essential elements for Good Color and Edge Strength.**

Oliver B. Dawson

NEW YORK, July 16, 1883.
DR. OLIVER B. DAWSON, DEAR SIR:—I have received a large number of letters of inquiry in relation to your White Alloy. These letters remain unanswered for the reason that I have not had the time to reply to them. But it would give me great pleasure to express in some way, the satisfaction I have experienced in the use of the Amalgam made with it. In the proportions in which I use it, one-fourth Mercury to three-fourths Alloy, it produces the best plastic filling I have ever constructed. Becoming very hard and tough, it is susceptible of receiving a high polish, and does not shrink under severe tests. In color it is a very light grey, which does not change in the mouth. Possessing, as it certainly does, in an eminent degree, the above valuable qualities, I consider it the best alloy I have ever used.

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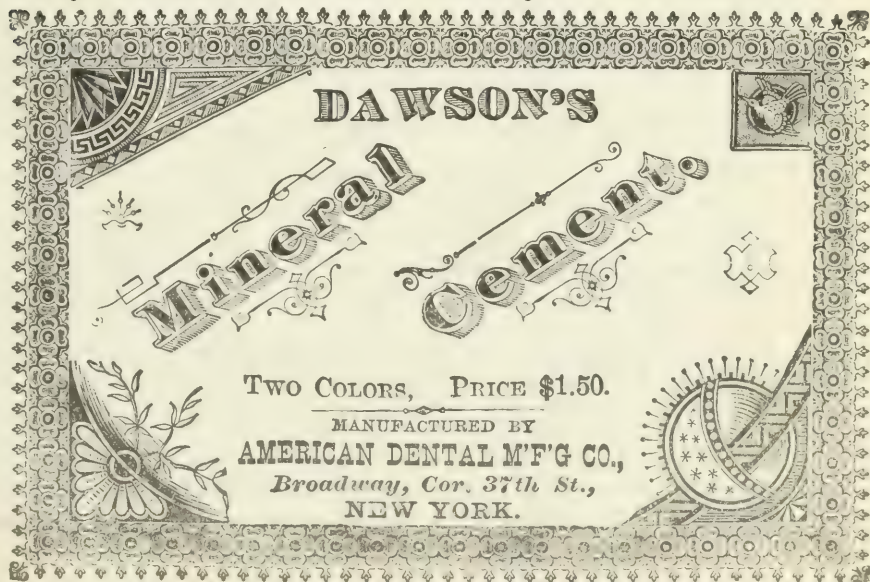
We quote below a few remarks from our last letter from Prof. J. Foster Flag;

Dr. O. B. DAWSON: DEAR SIR,—The sample of Gutta-Percha Stopping you last sent me is the toughest that I have ever worked, and seems to possess so much merit that I would like to know more of it. * * * * Is the result due to an exceptionally good Gutta-Percha? * * * * If you can make such Stopping as you sent, I should be pleased to aid you in bringing it before the profession in a very decided manner, etc., etc.

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Independent Practitioner.

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Original Communications.

FERMENTATION IN THE HUMAN MOUTH; ITS RELATION TO
CARIES OF THE TEETH.

BY DR. W. D. MILLER, BERLIN, GERMANY.

(Continued from page 65.)

In addition to the experiments described in the preceding number of this journal, I add the following: A sound bicuspid tooth was sawed into sections, varying from one-third to one m. m. in thickness, and an equal number of these sections placed in each of two test-tubes. Into one of these test-tubes were then brought five c. c. of a perfectly neutralized two per cent. aqueous solution of beef extract; into the other the same solution, with the addition of 0,2 cane sugar. Both tubes with their contents were then sterilized, and, upon cooling, infected from a pure culture of the fungus under consideration.

The solution in the second tube became acid in a few hours; not so, however, with that in the first tube, it being non-fermentable. At the end of one week the thinner sections in the second tube were so far softened that one of them, removed for examination, could be easily bent between the fingers. At the end of the second week

all but the thicker sections were completely decalcified. One of these sections was now placed upon the freezing microtome and made into cuts, which were stained in fuchsin and mounted in Canada balsam. A microscopic examination showed that the fungi had penetrated many of the tubules to a considerable depth, the invaded tubules being at the same time slightly extended. At the close of the third week the invasion was found to have become much more extensive, the tubules much dilated, and in some places the walls were broken through, leading to the formation of oval spaces or caverns in the dentine.

In short, we had a typical case of caries.

It is hardly necessary to state that the thinnest sections in the first tube, where the development of the fungus was not accompanied by an acid fermentation, did not show even the traces of softening, to say nothing of caries.

I had then produced caries by inoculating sound dentine from a pure culture of a fungus found in carious dentine, in the presence of the same fermentable substances that occur in the mouth. It seems that a clearer solution of the problem can at present scarcely be expected. Of course the thought at once suggests itself to every one that this decay is quite independent of putrefaction; all evidence points to the conclusion that putrefaction at most does nothing more than dispose of the already devitalized and much riddled remains of tissue, and we are in danger of overrating its influence, even at this stage.

Pieces of dentine in a solution kept constantly pure and sour by fermentation, not only become softened and show the microscopic changes characteristic of carious dentine, but finally, after some months, disappear altogether, as has repeatedly been the case in my cultures. From this we must infer that the process commonly known as putrefaction is absolutely essential at no stage of caries; especially is this the case in caries of enamel.

It has been intimated that the active agent in this process is nearly related to, if not identical with, the fungus of sour milk: *Bacterium acidi lactici*. The analysis of the product of fermentation will show the truth or falsity of this supposition.

The method of carrying out such an analysis will now be given. Two hundred c. c. fresh saliva are mixed with 2,0 starch and allowed to stand forty-eight hours at blood temperature; the mixture is then filtered and heated to one hundred degrees Centigrade, to stop the fermentation. This process is repeated until about a litre of the solution has accumulated. It is then placed in a retort and reduced to a volume of about seventy-five c. c. It will be very strongly acid. A few drops of this liquid are added to a thin solution of methyl-violet, and leave it unchanged; from this we conclude that we have to deal with an organic acid, as an inorganic acid would turn it first blue, and then green. Since the acid did not distill during the prolonged boiling, we may set it down as non-volatile; hence a non-volatile, organic acid. The distillate was very slightly acid; we will call it distillate number one, as we wish to refer to it again.

The solution was further reduced in volume to about forty c. c. over the water-bath, and then transferred to a large glass vessel, briskly shaken with one and one-half to two litres of sulphuric ether, and allowed to stand until the ether became perfectly transparent. This was then filtered into a large retort and distilled, proper precautions being observed to prevent accidents. When the volume had been reduced to about fifty c. c. the solution was filtered into a porcelain vessel, and still further reduced over the water-bath. A portion of the solution tested in the short tube of a Mitscherlich double-shadow polaristrobometer gave, as a mean of ~~five~~ readings, a rotation of the plane of polarization equal to 0,015 degrees, or $0^{\circ} 0',9$. In other words, the solution was optically inactive, the $0^{\circ} 0',9$ being far within the range of the error of experiment, especially as the solution was not absolutely transparent.

An excess of freshly prepared oxide of zinc was then added to the solution, and the whole slowly and carefully boiled, water being added as it was found necessary, till the reaction became neutral, or nearly so, filtered into a large glass evaporating dish, and put away at the temperature of the room for the salt to crystallize. A drop of this solution placed upon a glass slide gave, upon crys-

tallization, the forms seen in figure one, which are at once recog-

Fig. 1



nized as crystals of lactate of zinc. In a few days a quantity of a whitish crystalline powder had formed. This was placed upon a filter, the mother-liquid squeezed out, washed in absolute alcohol, dissolved in hot water, re-crystallized and dried over sulphuric acid; it then weighed 0,343. After exposing to a temperature of one hundred degrees Centigrade, or a little more, till the weight became con-

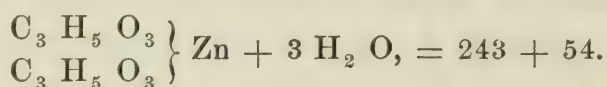
stant, it weighed 0,2816; it lost accordingly 17,9 per cent.* of water of crystallization, corresponding to three molecules of water. The salt was then dissolved in water, the zinc precipitated as carbonate and burned. The burned mass (zinc oxide) weighed 0,0970. We have consequently :

Substance analyzed (a zinc salt) = 0,343

Oxide of zinc = 0,097

The zinc oxide is seen to be equivalent to 28,2 per cent. of the substance analyzed.

The formula for the inactive ethylidene lactate of zinc is—



Dried at ordinary temperature it contains 27,3 per cent. zinc oxide. The result obtained from the analysis differs, therefore, from that deduced from the formula by less than one per cent., and settles beyond doubt the fact that the substance analyzed was the lactate of zinc, or that the acid generated by the fermentation is lactic acid, or, more exactly, inactive ethylidene lactic acid, since, as shown above, the acid solution was optically inactive, and the zinc salt contained three molecules of water of crystallization. The salt was furthermore soluble in sixty-two parts water at fourteen degrees Centigrade.

I repeated the analysis with the following solution:

* Theoretically 18,2, or 0,3 per cent. more.

Water, 1000 c. c.

Saliva, 300 c. c.

Bouillon, 200 c. c., made by boiling 125,0 beef ten minutes in 300 c. c. of water.

Sugar, 10,0.

This solution being slightly acid was neutralized with the carbonates of lime and sodium, sterilized, and infected from a pure culture of the fungus in question.

It was treated throughout exactly in the manner above described, except that the zinc salt was converted into the sulphide instead of the carbonate, and burned with powdered sulphur in a stream of hydrogen. The result was as follows :

Substance analyzed, = 1,0540

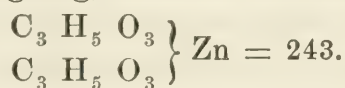
Zinc sulphide, = 0,415

Zinc, = 26,38 per cent.

instead of 26,74 per cent., as deduced from the

formula, a difference of only one-third of one per cent.

In this case the substance was dried at one hundred degrees Centigrade before weighing, and the formula becomes



One more analysis was made, using—

Water, 1000 c. c.

Liquid beef extract, 20 c. c.

Sugar, 10,0.

The result was the same, and need not be given; the two analyses above described being abundantly sufficient to show that the acid generated by the fungus in question is the common ferment, lactic acid.

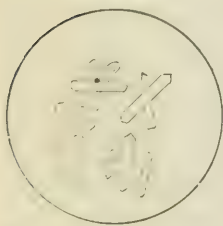
Distillate number one, referred to above, owed its slight acidity, we now know, in part at least to lactic acid, since, when an aqueous solution of lactic acid is boiled, a small fraction of the acid goes over with the water. To ascertain, however, whether any other acid, especially volatile, was present, the distillate was boiled with carbonate of lime, filtered, evaporated to dryness, a small amount of dilute sulphuric acid added, and heated in a retort over the water-bath; a few drops of an oily acid came over, which, when

taken upon the fingers, smelled like butyric acid; the amount, however, was so small, that no attempt could be made to analyze it.

I have been able with some degree of certainty to establish the presence of lactic acid in carious dentine, by a method theoretically so simple that it seems strange it has never been made use of before, but which, however, in practice is only carried out with great difficulty. My first and second attempts were only partially successful; the third succeeded sufficiently well to justify its description here.

In this experiment I made use of fifteen teeth, all containing considerable quantities of carious dentine, and all extracted on the day of use. The remains of food were first removed from the cavities, but none of the softened dentine; then all the softened dentine was taken out and placed in a porcelain vessel, cut or picked into fine pieces, placed in a test-tube with one c. c. of water, and two drops of a ten per cent. solution of hydrochloric acid added. Any free lactic acid in the carious dentine would remain free, and any existing in combination with lime would be set free by the hydrochloric acid. It was then gently shaken with about twenty-five c. c. sulphuric ether, and the latter, holding the lactic acid in solution was, after some minutes, poured off into a second test-tube; here it must be allowed to stand from twenty-four to forty-eight hours, till it becomes perfectly clear. It was then filtered into a porcelain dish, evaporated, a few drops of distilled water and a small quantity of *freshly prepared* zinc oxide added, gently boiled (water being added as necessary) for ten minutes, the three or four drops of liquid remaining filtered on to a glass slide, and allowed to crystallize. I obtained the forms seen in figure two.

Fig. 2



Their close resemblance to the crystals of the lactate of zinc (Fig. 1) will be seen at once. There can, in fact, scarcely be a doubt that they are lactate of zinc crystals. The lactic acid concerned in their formation must of course have existed in the carious dentine.

I have noticed in the dental journals a tendency on the part of some writers on this subject, to derive a large

amount of satisfaction from the statement that, after all, what I have done to clear up the subject of dental caries was done and known long ago.

One writer even states that he might almost have said two years ago, something that I said but a few months since. Let me say, once for all, that I have too little spare time to devote any of it to the discussion of the question who *said* this or that first, or even who *might almost* have *said* something two years ago. There is perhaps no human disease about which more has been *said* than about caries of the teeth, and when the subject shall have received its final settlement there will be hundreds who may say "I told you so." Malassez and Vignal very justly say of Baumgarten, who claims priority over Koch in the discovery of the tubercle bacillus: "*Il ne suffit pas de trouver, il faut prouver*"—and I do not hesitate to say with reference to some of the discussions which for years have been carried on concerning the cause of dental caries: *Il ne suffit pas de deviner, il faut trouver et prouver*.

It is not enough to guess the cause, or guess at it; we must *find* the cause, and, having found it, *prove* that it is the cause sought for.

(TO BE CONTINUED.)

WOMAN.

AN ORATION DELIVERED BEFORE THE AMERICAN ACADEMY OF DENTAL SCIENCE, BOSTON, NOVEMBER 7, 1883.

BY N. W. KINGSLEY, D. D. S., NEW YORK.

Two days' journey from Boston, half a century ago, the traveler would have found among the Green Mountains of Vermont a charming little village, situated upon a plateau, with a background of mountains, and a valley bounding it on three sides.

Across the valley other mountain peaks arose in every direction, breaking and beautifying the horizon line around the entire circle.

The evening sunlight, and the morning sun as well, developed a landscape which for picturesque beauty can nowhere be excelled. The meadows and the pastures, the groves of pine, of beech and of maple, the quiet river, and the laughing, dashing brooks, the little cascades and the larger waterfalls, formed a scene which in certain conditions of the atmosphere became surpassingly enchanting.

In the spring-time, when the river was swollen by freshets, the roar of a cataract higher than Niagara was heard for miles, and the meadows became a vast inland lake. No gorgeous sunsets ever exalted an enthusiast more than those which at times illuminated the ravines and faded away upon the mountain peaks.

No grander or more startling peals of thunder, reverberating from crag to crag, ever terrified the timid more than at times broke over the stillness of that secluded spot. A peaceful, virtuous and happy people made up that community, almost Arcadian in its simplicity, but withal a refined, educated and cultured people. Even in its district schools the sciences and the classics were taught by students of Harvard and Dartmouth, and in the village was a well-selected library of several thousand volumes, suited to all ages and all tastes.

On the Sabbath in that day every farm-house in the entire community was almost deserted during the hours of church service, for the people were not only a religious people, but they still retained the Puritanical forms. The Sabbath began on Saturday at sunset, and the boys felt that they had committed a sin if they continued ball-playing into the twilight.

On a Sunday at that time might have been seen in the village church, on the hill, he who is now the most noted skeptic living, listening to his own father's exposition of the brimstone doctrines which the son now ridicules.

Memory calls up a lad of that day who devoured with avidity all the literature specially adapted to youth which the library then contained. The volumes were few, and they were chiefly devoted to descriptions of life in Boston; but the style was charming, and the incidents related so fascinating that they were almost learned by heart.

It was the lad's first knowledge of city life, and to him Boston was the most attractive and most delightful place on earth. In his imagination it was the center and abode of all learning and all art. It was the home of polite society, and an aggregation of intellect and culture. There was a glamour over everything relating to Boston, in that youthful mind, which has never been obliterated nor superseded; and to-day, as a half century is drawing to a close, he stands here, your chosen orator upon this occasion, and he thinks of Boston as the ideal city of the modern world.

With such a respect for the intellectuality of a Boston audience, is it any wonder that I should have hesitated in accepting such an appointment, or would it be regarded as a matter of surprise that I should be at a loss for a theme?

It is a laudable ambition in any speaker which prompts him to avoid well-trodden paths, and seek to develop new and unexplored fields. It is an assurance bordering almost upon conceit with which a speaker comes voluntarily before an audience, and addresses them upon a subject which has become threadbare with repetition. I have endeavored, heretofore, to avoid all such absurdities, and whether in speaking or writing, have generally succeeded in introducing topics that were at least comparatively new; and yet I am about to address you upon a topic more trite and more hackneyed than any other; one which has been the theme of writers from the earliest ages, and one which, at one period or another, if not at the present moment, has concerned each man in my audience more than his immortal welfare.

Our topic to-day is "WOMAN."

Is there any other subject, in all the ages, that would not have been long since exhausted and relegated to the domain of ancient history? Yet, like the kaleidoscope, every turn brings a new revelation, and my only justification upon this occasion is that I have something to say to a gathering of dentists which is specially applicable to them, and which, so far as I know, has not heretofore been said.

What is woman? and what her characteristics and capabilities?

If an intelligent being from another planet had no other means

of obtaining a knowledge of woman than by reading our literature, what opinion would he form, and to what conclusion would he come?

Is she a goddess, or a demon? angelic or satanic?

In classic and in modern literature, sages and poets have made her the object of many satires, of much praise, and of sentimental adulation. Three centuries before the Christian Era, Menander said,

“Of all wild beasts, on earth, or in the sea, the greatest is a woman.”

In the same strain Virgil says,

“Changeable and capricious always;”

and Livy,

“Her mind affected by the meanest gifts;”

and Plautus,

“Finding it much easier to do ill than well.”

Juvenal says,

“There’s hardly a lawsuit but is caused by woman.”

English literature abounds in quotations like the following from Otway:

“What mighty ills have not been done by woman?
Who was’t betrayed the Capital? A woman!
Who lost Marc Antony the world? A woman!
Who was the cause of a long ten years’ war, and
Laid at last old Troy in ashes? Woman,
Destructive, damnable, deceitful, woman!”

Or this from Granville:

“Women from Eve have been the devil’s tools.
Heaven might have spared one torment when we fell,
Not left us woman, or not threatened hell.”

It is with a sense of relief that we turn to Addison and quote a different strain:

“Heaven is in thy soul,
Beauty and virtue shine forever round thee,
Brightening each other! Thou art all divine.”

Milton describes her thus :

“ Grace was in all her steps, heaven in her eye,
In every gesture, dignity and love.”

And Pope :

“ She moves a goddess and she looks a queen.”

Look on this picture from Byron :

“ She walks in beauty like the night
Of cloudless climes, and starry skies,
And all that's best of dark and bright,
Meet in her aspect and her eyes.”

Longfellow says,

“ When she had passed, it seemed like the ceasing of exquisite music.”

And Milton again,

“ O ! fairest of creation, last and best
Of all God's works, creature in whom excelled
Whatever can to sight or thought be formed,
Holy, divine, good, amiable, or sweet.”

Through all the cynicism, satire, and exaggeration shown in these quotations, in all their apparent inconsistencies and absurdities, woman was viewed through a medium which the writer himself threw around her. It was he who clothed her with these attributes, and in his estimation she seems to have been regarded as a thing apart from himself—a being either so far below him that she was fit only for condemnation, or so far above him that he could only worship—never his exact equal or counterpart, endowed with the same faculties, prompted by the same motives, and incited by the same aspirations.

One of the strongest contrasts between barbarism, semi-barbarism, and the civilization of to-day, is shown in man's estimation of woman. In the barbaric state she was a beast of burden, or at best a slave. From the period of classic civilization until that of the Middle Ages, she was exalted by the chivalrous to the throne of a goddess; but in these modern days she has descended voluntarily from such an unsubstantial eminence, and seeks to be regarded only as man's equal, and enjoy all the rights and privileges that her faculties and endowments entitle her to. A generation since, the

ultra-theorists of her sex began demanding a recognition of her so-called rights, and since then she has been knocking at the door of our industries, and asking that she may be permitted to become an independent and self-sustaining creature. To the credit of the other sex, it must be said that this desire has met with general sympathy and co-operation. Women have not been discouraged to any extent from entering any field of labor to which their tastes or necessities inclined them, until now there is hardly an occupation in which they may not be found. According to the census of 1880, there were half a million persons engaged in industrial occupations of all sorts in New York alone, of which nearly one third were women and girls. Women were then taking part in nearly every profession and every trade not requiring rough physical labor and exposure, to which manifestly they are not adapted. But the experience of this generation has been, in this particular, and still is, an experiment. Women have been undergoing the crucial test of proving their ability to do a man's work, like and equal to a man. The fruits of her ambition are beginning to develop. Like the pendulum of all revolutions when set in motion, it was likely to swing to the opposite extreme, and now true progress for woman seems to lie in less exacting and less pretentious fields.

There is no problem in sociology of greater importance now than this: In what way can a woman best become an independent and self-sustaining creature?

In no city of the world am I likely to find an audience more in sympathy with my subject than here in Boston. Boston, more than any other place I know, has the reputation of viewing a social problem without prejudice and free from bias. Her society has not been weakened by the traditions or example of aristocratic class distinctions, nor tainted by the aspiring aristocracy of parvenu wealth. London first, and New York second, of all cities are the most antagonistic foes to woman's social advancement, if she be self-supporting. In London, because the idea of gentility, derived from the aristocracy, makes all self-support, even among men, in a measure degrading. The gentlewoman in London may maintain her social position; a pauper, upon the charity of her friends; but

earning her own living, never. In New York an aristocracy of wealth is growing which attempts to imitate that of birth, and its effects are equally disastrous.

It is no wonder that the young woman born of American parentage will not enter domestic service. From that moment she loses her individuality. No matter how light the service, no matter what physical comforts are provided, no matter how large the wages, there is no time which she can call her own; from early rising until time for bed, she is subject to the caprice and whims of a mistress whose orders are not always judicious nor always consistent. Domestic service in the rural districts, up to a recent period, could hardly be called service. It was rather the friendly help extended by the daughter of a neighbor of equal rank; and marked or real social distinction between mistress and maid was hardly thought of, for the families married and intermarried without a suspicion of class distinction. But domestic service to-day, and especially in towns and cities, involves all the apparent distinction which exists between mistress and slave. The servant loses her family name; she is Mary, or Katy, or Ellen; but Miss Brown or Miss Jones, never. The young woman of American birth who has received the best education of the public schools cannot enter domestic service without a feeling of degradation; and if she be of a higher grade of education, and fitted by nature and aspirations to adorn a higher station, what occupations are adapted to her?

Individuals of both sexes are by nature specially adapted to special employments. There are occupations which only the physical strength and endurance of the hardiest men are equal to, and others of quite as much importance are of so light a character that it would be considered effeminate in a man to engage in them. Some skilled labors belong to, and can only be prosecuted by, man by virtue of his superior strength. Occupations are suited to individuals, and not to a whole community, class or nationality. You would not make a beast of burden of a thorough-bred Arabian nor would you put the delicately reared and finely-cultured youth to carrying bricks and mortar. As civilization advances, there is created a wide range of employments that both sexes by nature are

about equally adapted to; but occupations for women ought always to take into consideration the physical distinction of the sexes. In a state of refined civilization, woman is only man's equal mentally. If she were created originally as his physical equal, she has become enfeebled by long habits of dependence, and by the accumulated inheritance of weakening influences through countless generations.

John Stuart Mill maintains the absolute equality of the sexes in respect to psychical endowments and social capabilities, and goes so far in defence of his doctrine of the essential equality of the sexes as to say, "Bring women up like men, and they will be able to do everything that men do." But Dr. Hammond, in a recent publication, opposes this view, and makes her man's intellectual inferior in all except her emotional nature. Hammond says that the differences between the brain of an average male and the average female are "numerous and striking." "The shape is quite different. The convolutions of the male brain are more intricate; the sulci are deeper, the secondary fissures more numerous, and the specific gravity of both white and gray substance is greater in man than in woman. Difference in structure necessarily involves difference in function. Woman's brain is one from which emotion rather than intellect is evolved, and this circumstance, while it constitutes one of the strongest factors among those which are concerned in the happiness and preservation of the species, is at the same time one which thoroughly disqualifies her in whom it is manifested for those sterner duties which must be performed through the exercise of the intellectual faculties."

Her emotional nature is as much an inherent and irrepressible sexual quality as is her maternity, and in considering her fitness for any station cannot be ignored. In that very fact lies her special adaptability to certain conditions in life, and by the possession of that quality does she become unfitted for other callings. Her judgments are not the verdict of dilatory reason; she startles by the promptness of her decisions; but it is intuition rather than reason, and she is more likely to be influenced by sentiment than by logic. She is esthetical but not mathematical; imitative rather than inventive. In her lie the capabilities of the artist more than the

mechanic. In exceptional cases she has reached the highest round in the ladder of fame in various branches of ideal art—in poetry, music, painting, and sculpture even, but she has not contributed to the utilitarian progress of the age by the invention of machines. “Who, however, will venture to say that the brain which evolves a mother’s love, a wife’s fidelity and self-abnegation, a sister’s devotion, a woman’s gentleness, forbearance and constancy, is not a better brain than one which prompts to making, executing and interpreting laws?” or to the planning of arctic voyages, the carrying of railways over mountains, to the building of suspension bridges, or the development of electrical science?

Woman’s sphere is not in the advance—the scout and pioneer of an emigrant train, the sapper and miner in front of a besieging corps, nor the general in supreme command even. Her place is with the sick and wounded in the rear of the battle, where she is of more value to the cause she serves, by saving lives, than he who stands in front and kills an enemy.

Man may reach the highest capabilities of his intellect and his nature, independent and unaided by woman, but woman is not likely to reach the highest possibilities of her nature without the aid of man. Woman reaches her highest destiny when she becomes man’s associate and helper, and her typical condition finds its best expression in the relation of man and wife. Longfellow, in “*Hiawatha*,” puts it in this way:

“As unto the bow the cord is,
So unto the man is woman:
Though she bends him she obeys him;
Though she draws him yet she follows:
Useless each without the other.”

But the question of marriage is not one over which she has entire control. Her innate modesty and refinement forbid her seeking a companion; she must wait and be sought. I do not believe this condition is a conventionalism of society intensified by long continuance; it must have always existed in some degree, and while woman possesses the qualities she now does, it always will.

But while she is waiting she must live.

The woman of to-day, who with self-respect and becoming dignity will be neither odalisque nor servant, asks herself the question, "What can I do?" "What am I by nature and education fitted for?"

It is not the working woman, as the term is generally applied, to which I now call your attention. It is not to the factory-girl, the shop-girl, nor to those who desire to be known as "sales-ladies." The shop-girl of to-day has been evolved to a large extent from the "cash-girl," and the sales-lady considers herself a higher evolution than the shop-girl; but each of these grades has received a preparatory training in the position which it had previously held, and in no case is superior education, culture or refinement, other than inborn refinement, of special value. An education equal to the position of cash-girl is a sufficient foundation upon which to base the training for the subsequent shop-girl or the later "sales-lady."

Your attention to-day is invited rather to a constantly enlarging class of refined and cultured women, who from a variety of causes are thrown upon their own resources, and obliged to support themselves.

What shall the woman do who, no longer young, has for the first half of her life learned to look nice and behave in a lady-like manner, whose education is the education of the upper middle class, when suddenly, through no fault of her own, or for the matter of that through her own fault, she is compelled to face the dismal problem of "how to live?" And if it be a serious question with the woman of middle age, it becomes tenfold more serious with the woman just entering womanhood. What are her chances in life outside the lottery of marriage, if her innate refinement and culture fit her for any station above that of mere working woman, into competition with whom she must inevitably come?

If any one question the number of such that are to be found in any community, let him put an advertisement in a city newspaper, offering genteel employment at a salary even ridiculously small, and he will be astonished at the army of women it will bring forth, of every age and nationality, and every social grade.

With the present liberal ideas, all the professions are open to her—law, theology, medicine, journalism, the lecture platform, and what not. It is only a question of natural and acquired fitness for either. In the first two, law and theology, we may safely say that up to the present time only exceptional women have made any progress, and even that is hardly such as to encourage others.

But medicine, of all the professions, is the one which can best utilize the special qualities which woman possesses. Medicine, as distinguished from surgery, is far from an exact science. The knowledge of cause and effect in medicine is still so uncertain that one is often inclined to believe them beyond the reach of reason. In fact, the best writers, the ablest reasoners, or the profoundest thinkers, as a rule, are not the best physicians. Disease and its cure frequently seem to defy all reason, and leave the charlatan with as long a list of successful cures as the scientist. The diagnosis of a disease would often be reached with as much certainty by intuition as it is now by reason. A consultation with an old country doctor, of limited education but large experience, will generally be of more value than the opinion of the most brilliant of recent graduates. While the former might not be able to formulate a reason for his opinion, the latter could overwhelm you with his.

Woman's sympathetic nature makes her eminently fitted for the care of the sick; and in the treatment of diseases of her own sex, and of all children, I cannot see why she should not be more successful than a man. I should not hesitate to trust her medicine, when I might beware of her surgery. Her inexactness would be fatal to her surgical operations, while her intuitions might be equal to the treatment of disease. But medicine involves years of application and study before a dollar can be earned, and to the young woman of otherwise liberal attainments, who must earn money now, it is a formidable undertaking.

Dentistry, as a specialty of medicine, has become almost a distinct profession—an ever-widening field, both in its attainments and its achievements. Into it now are crowding hundreds of young men every year. This very increase of numbers is producing the

effect of calling more attention to the subject, creating in the community a wider interest in the care and preservation of the teeth, and thus supply and demand are regulating each other. The necessity for the dentist is still far in advance of the supply. It is quite safe to say that if the entire community gave that attention to their teeth which is really needed for their health and comfort, there would be in the United States alone thirty thousand practitioners, instead of ten thousand, as at present.

Is there in dentistry a field for woman?

The experiment has already been tried to a limited extent. There are women now practicing dentistry who have gone through the curriculum of the dental colleges, passed the ordeal for graduation quite as successfully as their male associates, and set themselves up as independent practitioners; but the number is still very limited, and I doubt not they could be counted upon the fingers. The number is not large enough to prove woman's fitness or adaptability to the calling. Whatever success they may have attained may be accounted for by the fact that exceptional women can always be found—phenomenal, they might almost be called. For the present I should rather rank them with the exceptional few who have become in times past warriors and led troops to victory, who possessed more masculine qualities than feminine.

If my estimate of woman's characteristics be correct, then there is much in dentistry which is not within the scope of the average woman. I have said that woman is not inventive. Many of the processes in dentistry require that the inventive faculty should be largely developed. Woman is inexact. A majority of the operations on the natural teeth require mathematical precision, and to a very large extent the same operations require an excessive mental and physical strain, to which a woman is not physiologically equal. Like some other entire employments, there are things in dentistry to which a woman is manifestly not by nature adapted.

Practical dentistry is both a beneficent profession and a remunerative business, but it must be prosecuted as a business to insure a competency. In these days of millionaires and corresponding incomes, it is not unnatural that every one should desire to gratify

his tastes in such ways as only wealth can command. A dentist ought to be a man of culture and refined tastes, and to surround himself with the products of luxury and refinement demands a larger income than one pair of hands can ordinarily earn. If he be one by natural endowments adapted to a profession, the influence of which becomes almost entirely personal, he will in time find a claim upon his services more than he can meet. In a crowded practice, the result of an attachment of patients for their dentist through half a life-time of service, there comes eventually the question, "How can two hands be made to do the work of four?" for this one pair of hands cannot be supplemented in the fond estimation of the patient by another pair of hands controlled by another brain. There is not a dentist in the land who could not perform a far greater number of operations than he now does if he could devote himself exclusively to such only as required his superior skill, and relegate all things of a minor character to an acceptable and competent assistant; nor does competent assistant here mean skilled service in the full sense of the term.

This is one of the most serious problems that the successful practitioner is called upon to solve; and the history of the efforts made to meet the difficulty by the employment of younger practitioners is a record, in many cases, of sad disaster. More than one man who has spent the best years of his life in the effort to establish an unblemished reputation, and to acquire an influential *clientele*, has in an unguarded moment placed his confidence and his patients in the care of some young man as an assistant, only to find his confidence met by base ingratitude, his practice divided and enticed from him, and his days embittered by the infamous scandals of his younger rival. The risk of such a result is always impending. In the very nature of the case, the young man must be recommended as capable of performing skillfully whatever operations are entrusted to him; and if he be of winning manners, he becomes then in the estimation of the patient the equal of the principal. The intimate relations that exist necessarily between operator and patient afford an opportunity for the assistant to make influence and capital for his future benefit as an independent

practitioner. The temptation is rarely resisted, and it is almost impossible to prevent it by legal agreements, however binding. The day comes when the principal discovers, alas, too late, that the viper which he warmed into life has bitten its benefactor.

May not the profession turn to woman for the needed relief?

While I have said that certain skilled operations on the teeth, as now performed, are probably above the capacity of the average woman, I shall nevertheless maintain that there is a place for her in dentistry which can be better filled by her than in any other way. The possibilities of valuable assistance within her province are almost beyond enumeration. It is to the young woman of good breeding who has been favored with educational advantages, but who has no special artistic gift by nature, such as music or painting, which she can cultivate, that the opportunity opens to become a most useful adjunct to an honorable profession, and fill a demand in the great industrial hive for which she is eminently fitted.

But in what way can she be constantly and valuably employed?

She will save the time of the principal by meeting all calls and arranging appointments. She will keep the books of accounts and records, and write all but personal correspondence. She will have general care of the offices, and there will be a neatness and order in the arrangements and the instruments which a woman's good taste is sure to show. She stands at the side of the chair during an operation, and her ability to fill all the requirements of an assistant at that moment is unexcelled. As she becomes more familiar with the details of practice she will perform all the operations required upon the deciduous teeth, including fillings with any of the plastics. Her manner and her hand seem specially adapted to this class of practice, for children will more readily submit to necessary treatment at the hands of a gentle lady than to the same treatment by a man. She can go further, and take the entire charge of all regulating cases, with the occasional advice of the principal; and that branch of practice so dreaded by all, because of the apparent waste of time in the re-arrangement of splints, becomes in her hands a valuable source of income. In short, it is impossible to enumerate in detail the acquirements she will come to possess.

And all this is physiologically and psychologically within her power and scope, without unsexing herself, or in any wise destroying the charm which will always surround a refined woman.

There are a thousand and one little polite attentions to patients that good breeding require, but which unfortunately take the valuable time of the dentist, but which can be most graciously and acceptably performed by a young woman of pleasing manners and tact.

A woman's fidelity in such a position is in strong contrast with that of a man. She is not governed solely by self-interest; she is more faithful to her position than a man, irrespective of that interest. A man associated with you in business can rarely be depended upon longer than it is to his selfish interest to be so.

The ideal assistant, in a dental office, is a woman of education and refinement, of pleasing manners and address, interested in her vocation, viewing it with pride and not with humiliation, and devoted to the welfare of all she is called upon to serve.

The value of such an assistant can no more be measured in money than you can weigh with gold the value of the services of a sister of charity whose ministering care has brought the sick and suffering back into health.

One of the surest signs that a community approve of any departure in professional customs is the readiness with which quacks catch hold of a new idea, and advertise it for their own recognition and advancement. It is not an uncommon thing now to see in the columns of a metropolitan newspaper the advertisements of those who are holding out plausible inducements for patronage, in which it is stated that "a lady is in attendance."

I wish to make the position of "lady assistant" one which shall be recognized as no humble nor menial condition in any sense. It is not that of higher servant, nor an attendant, nor a "lady's companion" in social degree; but it is one of equal importance in its scope with that of the principal, and holds to him the same relation that the staff officer or leader of a brigade does to the general commanding.

If women are ever to become to any extent independent practi-

tioners of dentistry, it is far better that they be an evolution of the assistant, where they have been trained in the business of practice. The few who would then desire to take a college course would be more likely to succeed. While I would not stimulate a woman's aspirations in this direction, I should not under the circumstances discourage her.

I cannot conceive a more virtuous, noble or exalted ambition in a young woman than that which dismisses marriage (for the sake of the support which it will bring) from her mind as the sole aim and object of her life, and addresses herself to the problem of an independent existence. If marriage is offered with affection, by one whom she can respect, esteem and love, she merges her independence in another, and life's highest possible attainments may be reached. But in the consideration of her own life-work, if marrying is ever regarded as anything but a remote possibility, her success in any permanent calling which she may undertake will be problematical.

Such a determination upon the part of any young woman shows a courage that the sterner sex can hardly appreciate. To deliberately relinquish all hope of attaining the consummation of earthly happiness, and resolutely mark out a work to which life's energies shall be devoted, requires a strength of purpose, of perseverance, of fortitude and of heroism, which proves her possessed of the noblest attributes a finite being can have. A man must be less than human who can witness the uncomplaining struggles of a woman, often for her very existence, without calling out all the tenderest sympathies which his nature possesses.

If it were but in my power, from henceforth not another woman in all the world should have one anxious thought for her physical or material welfare.

While in various parts of my discourse I may have seemed to belittle woman's powers and capabilities, I desire in closing to pay to the ideal representative of her sex the highest tribute that language can command. No man shall excel me in the homage I pay to woman because she is woman; to her sincere, unselfish and faithful devotion to her conception of duty; to her consistent and

unwavering fidelity to her trusts ; to the sympathy and consolation she brings to the suffering ; to her bravery in adversity, her serenity in affliction, and to her benevolence, kindness and mercy, her trustfulness and constancy in all relations of life.

“To blot from earth’s vocabularies one
Of all her names, were to blot out the sun.”

“OVER THE GARDEN WALL.”

BY C. M. WRIGHT, CINCINNATI, OHIO.

IS DENTAL CARIES A DISEASE ?

If this is a simple question, there should be but one answer to it, and that answer should be so positive and so clear that every intelligent dentist could answer it promptly. There should be no doubt cast about the answer. It should be n, o, No ; or y, e, s, YES, in capital letters. We have been calling it a disease for many years. Old text-books have classed it among diseases of the teeth (*vide* Hunter, Lefoulon, Bond, Harris, Taft, etc.). Later text-books on dental *pathology* treat of dental caries. An immense amount of scientific work has been done on its etiology. Prizes are offered ! for the best essays on the subject. The youngest students in dental colleges enroll themselves under the banner of one or the other theory about the etiology of dental caries. We have battles among journalists and disputations innumerable about the cause of this important thing. Is it a disease at all ? Here in Ohio we are just as much interested in the subject, and know as little about it as many dentists in other sections of our beloved country, and we therefore discuss it warmly at every meeting of every society in the grand old State. “The Etiology of Dental Caries” is as regularly served as one of the important dishes at our *table d’ hôte* ; as soup, fish, or the roast is at any banquet *a la mode*.

At the regular meeting of the Mississippi Valley Dental Association, March, 1883, in discussing the second subject of the pro-

gramme, viz.: "Etiology and Pathology of Dental Caries," Professor J. Taft is reported as saying: "Decay of the teeth is not a pathological process. * * * The statement that dental decay is a pathological process is misleading, and should be corrected." In reply to a direct question as to whether he regarded dental decay as a *disease* or not, he replied, "I do not; of course, caries is preceded by disease. As the process goes on there is a line of demarkation between dead and living. In the dead part there can be no disease." Again: "In the incipency of dental decay pathological processes take place, but not after devitalization."

At the meeting of the Ohio State Dental Society, October, 1883, in the discussion of the usual topic, "Etiology of Dental Caries," Dr. Rehwinkel answered the question—"do you recognize dental decay as a pathological condition?" in this way: "Well, if it be not so at its incipency, it is very apt to soon become so." Drs. Taft and Rehwinkel are as well known and as highly esteemed by the readers of the INDEPENDENT PRACTITIONER as they are by the entire dental world of this age, and they have discussed publicly this question of the etiology of dental caries as often and as intelligently as any two men in any other State. They are authorities in the West, and yet, after reading their opinions, expressed in 1883, in regard to whether *caries dentium* is a disease or not, who can answer on authority, yes or no? That is, who can say whether it is a disease just in the beginning, or just after a while? Who can say exactly when it is a disease, or exactly when it is not?

Dr. Atkinson clearly defines the term *decay*, and gives its Latin origin: *de*, down, and *cado*, I fall; and in the September number of the INDEPENDENT PRACTITIONER, page 475, is reported as saying: "All this trouble about understanding what decay is has come from invariably attributing it to the seat of the activity, rather than the activity itself, and if it comes down to saying whether we really know what decay is, or that we do not know, *it depends upon our definition of the term decay.*"

Are dental societies always looking for the cause of something when they don't know what that something is? Would it not be wise to find out *what* it is before they try to find out *why* it is? or,

at least, does it not seem reasonable that we should have a definition that is clear to two men in the same State, as a preliminary to discussion?

Physiologists and pathologists have had considerable trouble in getting down to clear definitions of *health* and *disease*. They have disputed about the line of demarkation between them, and seem to have no sharply defined ideas on the question of when physiology leaves off, and pathology begins. They have, within a few years, shifted the line from one side to the other of certain hypertrophies. Dentists who are constantly cutting into and having under observation one class of tissues, seem to have no positive knowledge about an exact line between healthy and diseased tooth tissue. Here is a tooth, the physical properties of which are so good that every one would pronounce it healthy, and yet its elements may be at this moment undergoing a deterioration, a metamorphosis from impaired nutrition, and it may be slowly but surely getting into a condition that "predisposes" to decay, or to the disease, dental caries. We cannot see the deviation from the perfect type that starts that tooth toward the pathological condition. This is excusable. We may never know all the laws nor the influences that affect the tooth in its evolution from an embryonic layer of a germ, nor the influences for evil that preceded its beginning in that layer, but it seems to me that there should be no dispute about the coarser differences that distinguish a decayed tooth from one not decayed. There should be no indistinctness in our appreciation of conditions and terms in these later differentiations of tooth tissue. The line of demarkation should not move along the cavity, as Prof. Taft claims, nor should there be doubt, as Dr. Rehwinkel expresses, about the beginning or the ending of a process in so simple a question as the one asked in 1883, in Ohio.

The question should be answered, the line defined, and the name agreed upon in 1884. Is not the falling down of the elements of a tissue, as we see it in enamel, dentine, or cementum, disease? Are not *tissues of the body* that are in process of tumbling together from any cause, in a pathological state? When acids (organic or chemical) effect chemical changes in enamel, are there not anatom-

ical changes produced in the tissue? Can these anatomical changes in living tissue (or in the non-living formed material that has once been bioplasm)—this falling down of the elements of tissue that we call decay or caries—be in accordance with health, or the normal type, or can it be compared with any physiological process for the disposal of waste formed material?

In short, cannot this whole process be distinctly described as pathological, and as “over the garden wall,” that lies between physiological and pathological estates? When the process, with its accompanying possibilities and probabilities of micro-organisms, hyper-sensitiveness, pulp activity, nutritive excitation, etc., etc., extends into dentine, are we not even then over the wall, or are we carrying it along with us? I want to be sure about this. It is pleasant enough to sit on the fence in the moonlight, or in the shade on a hot day; but in utter darkness, not knowing what lies on either side, it is an uncomfortable situation. I am perfectly aware of some of the questions that might arise from Dr. Taft's view of the process. “A dead man is not in a pathological condition,” strictly speaking. He has passed beyond the physiological and pathological states, perhaps. There is also a falling down or decay of dead teeth, as witnessed in the crowns of natural teeth set upon pivots and plates, and subjected to the same influences that surround and destroy living tissues in the oral cavity. There are also other complicated processes in other living tissues, which lead to the arrest of the circulation, to local death, to mortification, etc., such as the varieties of gangrene. Decomposition will take place in muscle in a butcher shop, but if mortification take place in any part of the butcher's body, although the processes may be similar, one may be called a deviation from a state of health, and in the province of pathology, while the other does not get anywhere near to the “line of demarkation” between healthy and diseased tissue. Our question needs settling. Is *caries dentium* a disease, or is it simply the result of disease? and what is the disease that causes caries?

IODOFORM IN DENTAL SURGERY,

BY C. F. W. BODECKER, D. D. S., M. D. S., NEW YORK.

Iodoform was discovered in 1822 by Serullas; it is obtained by the action of iodine upon alcohol, in the presence of an alkali; it forms into small, scale-like crystals, of a light, yellow lemon color, of a very disagreeable odor, and peculiar sweetish taste. Iodoform is insoluble in water, but freely soluble in ether, chloroform, and in fats and oils. When exposed to the atmosphere it gradually evaporates, even at an ordinary temperature. In solution it gradually decomposes, whereby free iodine is liberated; especially is this the case when exposed to the sun or daylight. All solutions of iodoform should therefore be kept in a dark and cool place, but even with the greatest of care they decompose in from one to two weeks, when the solution assumes a dark, yellowish brown color. To disguise the very disagreeable odor several substances have been mentioned, such as the oils of peppermint and wintergreen, or cumarina, which is an extract from the tonka bean.

The great therapeutical value of iodoform is due to its antiseptic and anæsthetic properties. The latter are not strongly marked, but it is certain that pain has been allayed by an application of iodoform in the form of powder, but whether this is due to the local anæsthesia, or to its great antiseptic properties by which it relieves the tissues of the irritating septic matter, is as yet an unsettled question. The antiseptic properties of iodoform are of the greatest importance, and the manner in which it acts is believed to be as follows (Hogyes and Niemeyer): "Iodoform, when applied to wounds, is first dissolved in the fats present in the tissues, from which free iodine is, according to the authors, gradually liberated." The action of iodoform is, therefore, due to the iodine, which in the nascent state has no irritating properties, such as are observed when iodine or its compounds are made use of. Behring (*Deutsch Med. Wochenschr*, No. 11) states that when iodoform is mixed with starch or flour, after fourteen days standing no free iodine is noticeable, and this even when mixed with acids or alkalies. Upon

the application of heat, electricity, or substances which will readily effect oxidation, as peroxide of hydrogen, oil of turpentine, benzol, carbolic acid, etc., free iodine is liberated. The same is true when in contact with blood, but other tissues, such as connective tissue, the serum of blood, laudable pus, and nerve tissue, do not effect its decomposition. Fats in the fluid state dissolve iodoform and combine with it, whereby it is slightly altered, although no free iodine is liberated, but as decomposition sets in iodine is set free. In fresh and dry wounds, where no oxydizable matter is present, the iodoform remains unchanged, and the same is true when applied to unwounded granulations, but upon the exudation of blood free iodine develops. Iodoform, when in contact with blood out of the body acts upon the red blood corpuscles, making them scarlet red, while the iodoform assumes a bluish hue. When granules of starch are added they also become blue, but as the albumen of the blood acts upon the blood corpuscles, the blue stain is again removed from the starch. Binz (*Arch. f. Path. Anat. and Physiol. Bd. 48, Heft 3*) has observed that iodoform in the form of powder, when applied to the mesentery of the frog, reduces the emigration of colorless blood corpuscles, which is not the case when an oily solution of iodoform prepared in the dark has been made use of, and the prepared frog has also been kept in the dark for several hours. Thus iodoform vapor paralyzes and kills the white corpuscles. This action of iodoform in emigration can be accounted for by the other facts discovered by Binz, that iodoform, under the effect of daylight, is reduced in such a manner that iodine passes through the walls of the capillary blood-vessels without perceptibly affecting them, while it paralyzes and kills the white blood corpuscles which adhere to them. Vom Hoffer (*Wiener Medic. Wochenschr, No. 38*) regularly observed, after a hypodermic injection of iodoform in rabbits, a diminution of red corpuscles.

How iodine acts as an antiseptic has not been definitely settled, but as it belongs to the group of hyaloid bodies (chlorine, iodine, bromine and fluorine), which all have a very great affinity for hydrogen, it may be hypothetically explained that the free iodine

combines with the hydrogen of the water present in every tissue; thus oxygen is set free, which in turn may neutralize septic matter.

Harmless as iodoform seems to be in certain quantities, yet cases of poisoning by the valuable drug have been recorded by Schede, Czerny, Langstein, Oberlander, and others, although the amount used was very large in comparison to that in which it is applied in dental practice. A short review of some of the cases may be of interest, even in this connection.

(TO BE CONTINUED.)

MULTUM IN PARVO.

BY J. SMITH DODGE, JR., M. D., NEW YORK.

I was glad to show my pupil the other day one of those little things which seems too small to tell of, but which is much too large to neglect. It occurred to me that it might, after all, be worth while to jot it down. A lady complained of serious pain among the right lower grinders, whenever she ate anything sweet. She could not select any tooth as the seat of it. I found a magnificent set of teeth, regular in form and position, with a few very medium-sized fillings, and one gap where the right lower first bicuspid had been. Although she was about twenty-three, the wisdom teeth had not all erupted. At the point of trouble stood a group of three teeth; second bicuspid, and first and second molars. They were finely formed, and none had ever been filled. The proximal surfaces were easily examined, and were perfect. The necks were fully covered by the gums, and no sensitive spot could be found. The grinding surfaces seemed sound, clear, and well covered with enamel, and a probe run in the usual way along the fissures discovered no defect. And yet one or the other of these three teeth was very sensitive to sweets.

Suspecting what the trouble was, since everything else was now excluded, I selected the first molar, of which the grinding surface was strongly ridged and grooved, and applied the edge of my thinnest hatchet excavator along the grooves as an explorer. No

impression was made at first, but as I went to and fro, insisting that it must enter somewhere, it began to stick a little at one innocent-looking spot, and finally it was possible to enter very slightly into the fissure. A bur of the size 00 in Hodge's gauge opened a very little excavation, scarcely larger than the bur, and barely sensitive. But this I filled, with confidence that it had made all the trouble, and the next day the lady reported that sweets had lost their sting.

Of course the existence of such a minute crevice is not mentioned as anything remarkable. It is the necessary beginning of most fissure cavities, and dentists might find several any day. But the peculiarity is, that once in a great while such a crevice, too small to be discerned by any usual probing, is so exquisitely sensitive that relief must be had; and yet I never saw an instance in which the patient could certainly locate it. Neither do these cases occur in the soft teeth, which are always sensitive. These decay freely, but do not grumble till a manifest hole is formed. I have always found them in particularly good and wholesome-looking teeth. It would be interesting to know just what peculiarity of structure in these rare cases gives rise to so great a sensibility with so little exposure.

The practical upshot of it is, that when pain from sweets is complained of in a specially strong, sound tooth, and all the usual causes are sought in vain, the seat of trouble is almost certainly a microscopic defect in one of the grooves of the grinding surface, and just as likely as not at the very spot which looks most sound and perfect to ordinary examination. It seems almost like magic, that so small a filling as is needed should cure so large a pain as that which the patient complains of. But therein lies the dentist's triumph.

AN INCIDENT OF PRACTICE.

BY C. E. FRANCIS, D. D. S., NEW YORK.

One afternoon, some five years ago, a lady residing in the neighborhood came rushing into my office, bringing with her a child—a little girl scarcely four years of age, who, but a few minutes before,

was precipitated from a chair on which she had been standing, headlong to the floor. In her descent her left superior central incisor collided with the base of a walnut dressing case, and in an instant the tooth disappeared. The child's lip was cut and swollen, and the blood was flowing copiously. Wet napkins were applied, and after the hemorrhage was sufficiently checked for examination, it was found that the tooth still remained, but had been driven so far upwards that the coronal cutting edge extended beyond the line of the alveolar margin.

The following morning nitrous oxide was administered and the tooth carefully brought down to its original position. Topical treatment soon allayed the inflammation, and in time the tooth became firm.

Some degree of anxiety was felt concerning the germ of the permanent incisor, fearing that it might have suffered injury from the sudden and severe shock. In proper time, however, it made its appearance, bearing no evidence of having ever been disturbed.

Reports of Society Meetings.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

The regular monthly meeting of this Society was held at the office of Dr. F. C. Barlow, No. 646 Jersey Avenue, Jersey City, N. J., December 27, 1883.

INCIDENTS OF OFFICE PRACTICE.

Dr. Watkins.—I have here a tooth extracted the other day, which was filled several years ago with gold. The pulp was dead, the root was not filled, and of course there was subsequent disturbance. It came out very easily, was bathed in pus, and on examination I found that half the root still remained in the mouth. The root had been split, and to my apprehension this was done by the pressure of gas within the pulp chamber.

Dr. Atkinson.—There is no other explanation that will contradict that as far as I can see. I have been acquainted with many instances, two of which were loud enough to be heard at quite a distance.

My father and my sister-in-law afford two examples of explosion sufficiently loud to be heard. I remember we could not believe a tooth had exploded, but it gave relief. I do not think we are able to tell what it is that makes the change in the molecules, and generates the gas so suddenly that it becomes such a powerful explosive.

Dr. Watkins.—I questioned this gentleman regarding the case. He could not remember experiencing any explosion in the tooth.

Dr. Luckey.—On Monday a gentleman called at my office whose teeth, with the exception of the first two molars in the upper jaw, were as perfect as any I have ever seen. I noticed along the roots of the right and left upper molar there was absorption of the soft tissue. He wanted an explanation, and desired to know if it would be a serious matter, and whether he would have to lose the teeth. I looked in vain for foreign bodies; there was no irritation, no tartar to be found, and I could attribute it to no discoverable cause. I present the case now to learn if any gentleman present can account for it.

Dr. Atkinson.—We often see this condition, and a great many practices are charged with it ; tobacco chewing, smoking, and the tooth brush have been accused. My impression is that these teeth have less longevity than any others, and run life out much sooner by reason of want of nutrition.

Dr. Luckey.—Is there any successful treatment for this case ?

Dr. Atkinson.—Yes; you could make a pocket, so as to leave a place or a space to allow for the growth of new tissue, by means of a properly constructed plate. I have a case that is very interesting; one that I have treated since last August. The tooth was knocked loose over thirty years ago, and when it came to me there was not enough connection between the dental membrane and the tooth to keep it upright. He could play it back and forth with the tongue very readily. I tied it in place, and the tissue is now so far reproduced as to leave only space enough for inserting a small syringe

point, with no indications of pus at all, while previously it had been discharging from the nostril. The ligature can soon be removed, and it be left to nature.

Dr. Luckey.—I had a case where the patient suffered from soreness in the right central, and yet there did not seem to be any swelling at the apex of the roots, but I saw from the color that the pulp had been dead for some time. I drilled into the pulp chamber, and there was a great discharge of pus and bloody serum. We could not stop the discharge, which seemed to come from the nose, but he said he had experienced relief.

Dr. Atkinson.—Certainly he had catarrh from the nose, and that was where the point of relief was. You can stop the discharge with chloroform, or what is better, carbolic acid on the end of a stick, and just where it is beginning to turn white cut through and, after cleansing, fill the root, and it will be cured.

Dr. Palmer.—I will relate an incident that happened to one of our profession in Pittsburgh, Pa. A short time ago a gentleman called to have his teeth put in order before going to Cuba. Examination showed that they were all very loose. The gentleman wanted them filled. The dentist cleaned them thoroughly, going well under the gums, and then applied sulphate of copper. He then dismissed the gentleman, who was very indignant that the dentist should refuse to fill the teeth. The doctor said they were entirely too loose, and that time must be allowed to heal them. The gentleman wanted to know if that was the way he always treated his patients, and went away much incensed. About a year after, the same gentleman entered my friend's office with the remark, "Will you fill my teeth now?" Examination showed that the teeth were as firm as ever—one *thorough* cleansing and application had accomplished the work.

Dr. Atkinson.—If you cannot cure with one application you can with fifty—that is, if you will persist in the use of iodoform.

Dr. Richards.—A lady came into my office this afternoon. I noticed in taking an impression of her mouth that one tooth was a bright, claret color. I have often noticed it before, but never knew the cause of it.

Dr. Atkinson.—It is infiltration of the dentine. The coloring matter has four or five names—hemoglobine, hematine, etc. It is the red coloring matter of the blood.

Dr. Watkins.—Since the meeting at my house I have had several enquiries made in regard to extracting and replacing teeth. The case which I showed that night has been perfectly successful. The next case I wish to speak of is that of a young lady about twenty-three years of age. The pulp of a second bicuspid was considerably congested, and she insisted upon having it out. I could not persuade her to have the tooth treated and filled, but after extracting it I insisted on putting it back again. I first trimmed the root off about one-sixteenth of an inch, and syringed the socket with a weak solution of carbolic acid. I removed the nerve, filled the canal with gutta-percha, put a little iodoform on the root, and tied the tooth in with silk floss, and in six days she said there was not a particle of soreness. I have seen her frequently since, and it seems to give her no trouble at all, and she considers it just as good as any tooth in her mouth. The next case is that of a young man about nineteen years of age. His first left superior bicuspid I treated in the same way, except that I used nothing to syringe the socket out, and at the end of seven days he could eat with it, and it seemed to be entirely well. It seems to me that in many cases where the patient lives at a distance and would have to come several times for treatment, it would be most judicious to extract, fill and replant.

Dr. Ayers.—A young lady once came to me, for whom a physician had extracted the wrong tooth. I proposed to replant it, but the tooth was lost, and only found after a prolonged search, in the coal scuttle. I washed the cavity out, replaced the tooth, and now, after a year and a half, it remains in good condition.

Dr. Merritt.—One day last week a lady came into my office, for whom a tooth had been extracted sixteen years ago, and put back, and it is apparently in as good condition as ever, and is doing full duty.

Dr. Barlow.—Related a number of instances of successful replantation.

Dr. Palmer.—A young lady came into my office two weeks ago. I think she had been a patient of mine off and on for several years, but this was the first time I had seen her in four years. I examined her teeth, and among other things found one central incisor dead. On questioning her I learned that a blow or fall had knocked out the tooth. Their family physician was called, and arriving some hours after, he had replaced the tooth. It was sore only a few days, and had never given trouble. This was three years before. The physician told her it would never trouble her. It was *very* dark. I suggested opening, treating and bleaching it. Objections were raised because the M. D. had said it was all right. After some persuasion I gained my point—opened, treated and closed the tooth successfully. Immediately upon opening there appeared enough pus at the orifice to convince them that I was right. In this case I wonder if Dr. Watkins would prefer to re-extract, cleanse, and then replace? I preferred to treat it in the mouth. And I want to call attention to the fact that this physician did not know more than any one else, when he said the tooth would never give any trouble.

Dr. Levy.—I have heard about replacing the same teeth. I would like to know whether any have replaced other teeth.

Dr. Luckey.—There is no doubt that the replantation of teeth is very successful in many instances. There is one great objection to Dr. Watkins' plan; you never know in what condition the roots are by looking in the mouth. You cannot see exostosis, and when such teeth are once out there is no chance of getting them back.

Dr. Watkins.—In most cases of exostosis the only radical cure is extraction, and replantation would not of course be desired.

Dr. Palmer.—If a tooth were firm in its socket I should be inclined to treat it in the mouth rather than to extract it; but if it were elongated and loose, and the patient lived at some distance, I can see no objection to Dr. Watkins' practice. A leading physician of this State once came to me, insisting upon the extraction of a troublesome tooth. Examination showed a small cavity in the mesial surface of a left superior lateral incisor, extending into the pulp chamber, with an abscess discharging through the tooth. I advised treatment and filling. He was positive that there was no

cure; that such a thing was contrary to physiological law; but he finally yielded to my persistence, though, as he said, against his judgment. To-day that tooth is doing good service, and the physician is at last convinced that dentists may know more about some portions of the body than even a successful physician.

On motion the society adjourned.

NEW ORLEANS ODONTOLOGICAL SOCIETY.

The regular monthly meeting of the New Orleans Odontological Society for November, was held at the office of Dr. W. S. Chandler, on the evening of the thirteenth, Dr. J. W. Adams presiding.

Nine members were present. Absent, Dr. P. J. Friedrichs.

The minutes of the previous meeting were read and approved.

Dr. C. Edmund Kells, Jr., read a paper entitled "Care of the Teeth," of which the following is a synopsis:

Dr. Kells first called attention to the great importance to dentists as well as to patients of the subject, "Care of the teeth," and opened with the statement that "Cleanliness is the bottom plank in the salvation of the teeth," and therefore every dentist should urge upon his patients the necessity for the proper use of the brush.

Not one in a thousand knows how to use the brush in a common-sense manner, and hence we often find deep furrows worn upon the labio-cervical margins of front teeth, attended with great recession of the gums, caused by a too violent and misguided use of the brush. Dr. Kells held that it was unnecessary to argue upon the bug theory, or the chemical theory, or the chemico-vital unification, but would trace back still further in the history of the process of disease, and call it want of cleanliness. He said that had he a sound and perfect tooth, he could keep it free from caries, provided he could polish each surface twice daily. He advised the daily use of floss silk, but could not depend much upon patients to use it regularly and faithfully. He also called attention to the many worthless patterns of tooth-brushes found in drug-stores and dental depots. He exhibited a sample brush of his own design, a curved brush,

the back conforming to the dental arch, with bristles of an equal length, retaining thereby an even contour, short, and of medium stiffness. Dr. Kells claims that it is the only brush constructed upon a scientific basis, and showed samples of Dr. Palmer's, and other brushes, for comparison. He spoke of the manner of using the brush, and as few patients possess that knowledge, he keeps a set of continuous gum teeth with which to demonstrate to them how to use the brush.

He then spoke of dentifrices; objected to soap, if used exclusively; said it was a lubricant, and would glide over particles of calculus that a powder would remove; preferred a carbolized powder, or precipitated chalk, used once or twice daily; had no use for soaps, pastes, or creams. He advised mouth-washes, but merely as adjuncts; advised flushing by the auxiliary sanitary method. He concluded by recapitulating the main points of his essay: First—the brush; second—the dentifrice; third—the use of both. On these the salvation of the teeth depended.

DISCUSSION.

Dr. Bauer.—Agrees with the sum and substance of the essay, except in the statement of the preservation of sound teeth, for he is not so sure of always saving a perfect tooth, because there are many conditions in which it may be lost, independently of caries.

Dr. Kells.—In reply, stated that he had reference to a tooth in which all conditions were favorable.

Dr. Geo. J. Friedrichs.—Thought Dr. Kells ought to have mentioned the tooth-pick, which was omitted in his essay. The brush, powders, etc., are all very well, but he holds that the tooth-pick is indispensable.

Dr. Kells, Sr.—Spoke of an instrument made of half-burnt clay, and shaped something like an anchor, which was used very effectively by Dr. Parmly in cleaning and polishing the teeth. He used it in connection with floss silk.

Dr. Geo. J. Friedrichs.—Said there is such a thing as abuse of the tooth-brush. Had often seen considerable abrasion of mucous

membrane in mouths of patients who, just before coming to the office, wishing, no doubt, to convey the idea of great cleanliness, had indulged in a too vigorous and muscular use of the tooth-brush. Advised his patients to use precipitated chalk three times a week, to use the brush three times daily, after meals, and limited the time of brushing to fifteen seconds, when no harm could be done. Disapproved of the too vigorous use of the brush, and especially the ten to fifteen minute exercise, as is customary with some people. Never saw a tooth lost from over-brushing.

Dr. Chas. E. Kells.—The teeth should not be brushed on first rising in the morning, but should be subjected to a thorough rinsing with plain water, in order to dislodge and carry off the viscid mucous secretions; but he advised a thorough brushing with powder after breakfast.

Dr. Bauer.—If necessary to choose, would sooner do without washing his face than to omit brushing his teeth; thought that before retiring at night was the most important time to clean the teeth, as it was an accepted theory that they decay more at night than during the day.

Dr. Chas. E. Kells.—Has a lady patient, whose teeth, despite all his and her care, will decay; she now uses, in connection with other cleansing appliances, a syringe for her teeth, in order to more thoroughly effect the cleansing process; has other patients who have splendid teeth, but who bestow upon them comparatively little care.

Dr. Geo. J. Friedrichs.—The same principle holds good with people who do not use a brush; their teeth are often found without caries. Chewing of tobacco is a preservative of the teeth. It stimulates the flow of saliva, keeps the fluids of the mouth in constant motion by the movements of the tongue, lips and cheeks, thereby constantly cleansing the masticatory organs. Tobacco is used so excessively by some as to grind away the teeth very rapidly, thus causing inflammation of the gingival portion of the gum around the teeth. He spoke of the green stain on the teeth of persons who brush their teeth, and described a method of removing it.

Dr. Viet.—Thought that the green stain was due to negligence had noticed it mostly upon teeth of children; said the stain would disappear after several washings.

The discussion here became general, and was participated in by Drs. Kells, Jr., W. S. Chandler, and others.

INCIDENTS OF OFFICE PRACTICE.

Dr. A. G. Friedrichs related the case of a gentleman in the drug department of Touro Infirmary, who, suffering extremely, came to him for relief. Upon examination he found the first upper bicuspids and lower cuspid roots the source of trouble; extracted both, and patient departed apparently happy. Afterwards, upon inquiry, he was told by the patient that Dr. Godfrey relieved his pain by lancing an abscess in his ear.

On motion of Dr. Geo. J. Friedrichs, the society adjourned to meet Tuesday, December 11, 1883.

CHAS. ECKHARDT, D. D. S., *Secretary.*

Officers of New Orleans Odontological Society:

Dr. J. W. ADAMS, President.

Dr. P. J. FRIEDRICHS, Vice-President.

Dr. CHAS. ECKHARDT, Secretary and Treasurer.

UNION MEETING OF THE SEVENTH AND EIGHTH DISTRICT
DENTAL SOCIETIES.

At a joint convention of the Seventh and Eighth District Dental Societies of the State of New York, held in Buffalo, October 30th and 31st, 1883, Dr. C. T. Howard, of Rochester, introduced the following preamble and resolution, which, after a full and free discussion, was laid upon the table indefinitely.

“In view of the progress made by the dental profession in the State of New York, and the better control of its highest interests obtained through continued working of wise and prudent legislation in its behalf, and the increasing belief in a thorough course of education as the only proper channel by which new members should in future be admitted to its ranks; be it

“*Resolved*, That the Seventh and Eighth District Dental Societies of the State of New York, assembled in Buffalo in joint con-

vention, recommend the abolishing of the power of the State Board of Censors and the Dental Society of the State of New York, to grant diplomas, licenses, or certificates of admission to the private practice of dentistry."

Dr. Barrett.—I second the resolution, for the purpose of bringing it before the convention for discussion. The matter will undoubtedly come up at the next meeting of the State Society, and I think a thorough discussion of the subject should be had previous to that time.

Dr. Line.—I shall vote against the resolution, as it seems to be in the interest of the "National Board of Dental Examiners." I am most heartily opposed to that Board. There are good men in it, and there are bad men in it; but it will take a long time to undo the bad work done at Niagara Falls. I am against all such methods as were there adopted, or any resolution which in any manner seems to be in the interest of that Board.

Dr. C. T. Howard.—I disclaim any intention of presenting this resolution in the interest of the "National Board of Dental Examiners." I present it in the interest of no Board whatever, but in the interest of dental progress and higher education. I feel that something should be done to take away from our State Board of Censors the power to grant diplomas and certificates of qualification to practice dentistry. A college course should be required of all men entering the profession in future.

Dr. Freeman.—I desire to say a word against the resolution. It has no place in this convention. This is not an official body, and cannot act upon such matters. I do not think the State Society would be offended if such a resolution should come to it from this body, yet it could have no weight. It should come, if at all, from the District Societies at their annual meeting in the spring; then the State Society would be bound to notice it.

Dr. Ellis.—It is very evident that there will be a minority report on this subject. But I would say to you, gentlemen, that it has got to come to this. It is a question of progress, and not of preference, and it will not be long before the profession will demand the abolition of this Board. Its effect is to cheapen dentistry by

admitting incompetent men to the profession. There is no doubt that a man can pass a State Board at a less expenditure of time and money than a regular dental college course requires, and this is why I say the tendency is to cheapen dentistry.

Dr. Lenox.—It was just so with me. It was an open question for a long time whether I would read up, go before the Board and get a diploma, or close my office, go to a college, and so enter the profession in that way. I chose the latter course, and should recommend it to any young man studying dentistry.

Dr. Butler.—I am opposed to the resolution. I am for standing by our "State Board of Censors." It has done a work in this State that no college could do, and it has not yet finished that work. No educational institution can do the work of that Board, and why any gentleman should desire to cut it off in the midst of its usefulness, I cannot understand. In matters of education it is first and foremost in all that relates to dental progress. Its requirements of the applicant are far higher than any dental college in the country. I believe in colleges. I am not opposed to them in any sense. Indeed, I would urge upon any young man the desirability of finishing his studies with a course at a first-class dental college. The mistake is, I think, in comparing our Board of Censors to an educational institution. Colleges are to educate and prepare young men for the profession; the Board to determine whether the applicant is thus qualified. That is all; and while it is a fact that colleges do sometimes graduate men unfit for the practice of dentistry, I ask you, gentlemen, to point to one M. D. S. who is unworthy of the degree. These are facts upon the side of our Board of Censors, and they are some of the reasons why I am opposed to the resolution.

Dr. Burkhart.—I believe in our Board, and shall stand by it in voting against the resolution. New York State stands in the front rank in dentistry, as in nearly everything else, and I believe that no little credit is due this Board for the fact; therefore I vote to sustain and encourage it in the work yet to be done.

Dr. French.—Read the law under which the Board was organized and governed, which was clearly in harmony with all our dental

colleges. There was no antagonism between the Board and the colleges, in the speaker's judgment.

On motion of Dr. Ellis, seconded by Dr. C. T. Howard, the resolution was laid upon the table by a unanimous vote of the convention.

Editorial.

ELECTRICITY IN DENTAL PRACTICE.

There is no field in economic science that offers to the student such inviting opportunities as the study of the conservation of force. In view of the later demonstrations that all force is a unit, differing only in its mode of manifestation, and that chemical action, electricity, heat, light, etc., are in reality identical and mutually interchangeable the one into the other, that wherever there are molecular or other changes or motions in matter there some one of the different manifestations of force is generated or eliminated, it is readily seen that incalculable units of energy are daily going to waste, that should be utilized for the benefit of man. Every wave of the sea, all the currents of the rivers, the ebb and flow of the tides, the winds that blow, are but molecular changes generating force that, if properly economized, would be far in excess of all the wants of man. The question has doubtless arisen in every thoughtful mind, whence shall future generations derive the necessary heat and light when the coal fields shall have been exhausted? for it is but a question of time when the last ton of coal shall have been mined. It is only necessary to remember that in the flow of the Hudson River, sufficient of energy is evolved to satisfy the demands of all the cities that may hereafter exist upon its banks. Could that force be economized and transferred into electricity, and that into light and heat as might be demanded, the great problem of the future would be solved.

At present we comprehend but dimly the nature and character of that manifestation of force that we call electricity, but already its possibilities are shadowed forth. Numerous attempts have been

made to employ it as a motive power in running dental and other machinery, but so far its application has been at such a tremendous disadvantage, through our ignorance of its real character, and the wastage of energy has been so out of proportion to the amount generated, that it can scarcely be considered a practical success. Great advances have been made in the past five years, but we are still a long way from the desired end. It would appear that its direct application to most machinery as a motive power is impracticable, and students in electrical science might profitably consider if it cannot be transformed into some of the other manifestations of force, and thus be more readily employed. By changing it into heat, in the electro-cautery, a very valuable appliance has been added to surgery, especially in operations in the mouth, where effusion of blood is so embarrassing to the operator.

But it is of its conversion into light that we desire most particularly to speak. So pure and so intense are the rays derived from it that, even with the imperfect apparatus already devised, a sight of the oral tissues under its illumination is a new revelation to the dentist. It is not long since that, in conversation with a prominent New York dentist who uses it, in relating a case of pericementitis, the origin of which was obscure, he remarked that upon placing the electric light in the mouth he *saw* that the root of the tooth was not filled to the apex. "What are you giving me?" was the comment. He repeated his assertion, only to be met with another exclamation of incredulity. "I am not in the habit of making statements that I cannot substantiate," said he; "come with me into the operating room." Calling his assistant, he placed the light in his mouth, and we were astonished at the result. We do not mean to assert that the teeth and their investing tissues were made transparent, but we do say that so intense was the illumination that the condition of the tissues could be, by the experienced operator, very clearly observed. The congestion produced by pressure altered the appearance of the soft tissues, so that even though it were comparatively deep-seated, it was quite plainly indicated. An inflamed pulp changed the looks of a tooth, interrupting the semi-translucency. A filling could be plainly seen through a tooth,

and a filled root presented a different appearance from one that was unfilled. But it was especially in determining the condition of proximate surfaces in close contact, that we were impressed with the usefulness of the electric light. If such surfaces were rough and unpolished, if food habitually lodged between them, the fact was at once apparent. If softening of the enamel had begun, the premonitory symptom of approaching decay, it was instantaneously revealed. If a pocket had formed beneath the gum, and foreign matter was lodged there, it needed not the probe to determine the fact. Incipient pyorrhea could be immediately detected. In short, we were so impressed with the manifest advantages to be obtained by the use of the electric light in the oral cavity, that in our mind's eye we saw the solution of a problem that has long vexed our practice.

The apparatus that our friend exhibited to us was the best of the many that we had inspected, in both Europe and America, but it was by no means perfect. We are waiting until something a little better shall have been offered, and then we expect that the electric light will be an essential in our operating room.

One great objection to the employment of electricity by dentists, is the constant care necessary to keep a battery in complete order. The busy practitioner has not the time to spend in keeping plates clean, and the fluids in proper condition, while few are blessed with assistants to whom this duty can with confidence be entrusted. The Trouvé-Faure storage batteries promise good results, but they are far from being perfect at present. The wastage is so great, the conservation of the electric force is so imperfect, that they are very unsatisfactory at best. But the principle of their construction is so clearly in harmony with what we know of the evolution of force, that we may hope for great things from it in the future. It is a misunderstanding to suppose that it is *electricity* that is stored. In reality it is *chemical* force, which, being set free, results in the elimination of electricity. In other words, in charging such a battery electricity is changed into chemical energy, which in action is re-converted into electricity. But it will readily be understood that in these changes very much of the force is wasted, to say nothing

of the constant *leakage* of energy which takes place when the battery is not in action. When the constant study and experiments of electrical experts shall have taught how to economize better, we may confidently look to see electricity employed to advantage in the office of every operative dentist.

ADVERTISEMENTS.

We do not propose to admit to the advertising pages of the *INDEPENDENT PRACTITIONER* any announcement of an article that we have not either personally tried or examined, or that does not come to us with the endorsement of impartial and responsible professional men, who are willing to vouch for it. Our readers need have no hesitation in ordering from our advertisers, for the standing of every one has been thoroughly investigated. Offered advertisements are sometimes declined because we are not satisfied of the responsibility of the parties, or know nothing of the article offered, and sometimes they are held over a month until due enquiries and examinations can be made. We fully realize that we owe a duty first of all to our subscribers, and no one, with our knowledge and permission, shall be permitted to offer them a doubtful article.

BACK NUMBERS WANTED.

The editions of the *INDEPENDENT PRACTITIONER* for August, 1883, and January, 1884, have been entirely exhausted. There must be many numbers in the hands of dentists who do not care to preserve them. To any one who will return to us either of the numbers mentioned, we will mail a copy of *CAULK'S DENTAL ANNUAL*, a very valuable publication, containing statistics and information that one must search through whole libraries to obtain.

LEFT OVER.

Considerable matter that had been prepared for this number, some of which was in type, has been crowded out. Editorials are always the first to give way, but we are obliged to ask the indulgence of some of our correspondents and contributors. Their articles shall have place at an early day.

OUR BOOK TABLE.

A SYSTEM OF ORAL SURGERY: *being a Treatise on the Diseases and Surgery of the Mouth, Jaws, Face, Teeth, and Associate Parts;* by JAMES E. GARRETSON, M. D., D. D. S. *Fourth Edition. Thoroughly Revised, with Additions.* Philadelphia: J. B. Lippincott & Co. 1884.

Immediately upon the appearance of the first edition of this work, it assumed the leading place as a text-book to which its merit and the distinguished position of its author as a surgeon and writer entitled it. The estimation in which it is held is evidenced by the demand for repeated editions, until now its fourth has been placed before the public. This is not a simple reprint of former issues. An examination of its pages shows that it has been thoroughly revised, while much new matter has been added. The third edition comprised nine hundred and sixteen pages. The fourth has ten hundred and thirty-seven, an addition of one hundred and twenty pages. Nor is it in volume alone that the improvements are visible. Many of the chapters have been almost entirely rewritten, while the order of presentation of subjects has been materially changed. So rapid is the march in dental science, that to remain in the advance, or even to keep pace with it, requires constant watchfulness on the part of authors. We are glad to see that the latest edition of this work leaves little to complain of.

"A System of Oral Surgery" gives but an imperfect idea of the comprehensiveness of the work. It might be called "A System of Dental Practice," for not only does it treat of oral surgery, but of operative and prosthetic dentistry also. It considers the qualities of the materials employed in dental practice, as well as the manner of using them, and while there is room for difference of opinion concerning methods and manipulations, few will dispute the soundness of the principles advanced.

The chapter upon Amalgams has been entirely rewritten, and large additions have been made to it. Upon the often-disputed question of the propriety of their employment, the author is explicit, but not radical. He believes most of the objections urged against it are not founded in fact, but admits that from an æsthetical standpoint it is exceptionable. He sums up the subject, how-

ever, by a generalization, which leaves the matter about where he found it.

"The place for and the use of amalgam, is to be decided by the judgment of the operator, and in proportion as such judgment is good or bad, so is a patient served or abused."

A chapter on "Inflammation," and one on "Diagnosis," have been added, and these are of exceeding great value. We have not the space or inclination to enter into a discussion concerning the pathological changes attendant upon that condition which we term inflammation, but must refer the reader to the book itself. Suffice it to say, that so much of new matter has been introduced as to make it obligatory upon every dentist, who desires to keep abreast of the advance of thought, to add the latest edition of this standard work to his library.

The publishers have issued the volume in handsome style, as, indeed, might have been predicted from their well-won reputation. The cuts are well executed, the letter-press is clear and distinct, and the binding is unexceptionable. Altogether, to say that the whole work is satisfactory, is but feebly to express the sentiments with which every intelligent dental surgeon will receive it.

DENTAL MEDICINE: *a Manual of Dental Materia Medica and Therapeutics for Practitioners and Students*; by FERDINAND J. S. GORGAS, A. M., M. D., D. D. S. Philadelphia: P. Blakeston, Son & Co. 1884.

It is an encouraging sign when repeated text-books upon materia medica and therapeutics multiply, for it indicates that dentistry has outgrown the day when it was considered but a mechanical art. Medicine is being rapidly divided into various specialties, to the great disturbance of a few old-time practitioners, but to the gratification of most thinking men, because, with the rapid growth of medical knowledge, the science has become too broad for one lifetime to suffice for the mastery of all its departments. Oral diseases are now, by intelligent medical men, relegated to the dentist. But their proper treatment requires of him a knowledge of the properties of such remedies as he will be called upon, in the proper discharge of his duties, to prescribe. The day has passed when the

successful dentist could practice with but two or three medicinal agents in his case. He requires a mastery of the principles of therapeutics, and a familiarity with all the leading drugs. The publication of books like that under notice, is therefore in response to a demand, and hence is a hopeful sign of progress.

Prof. Gorgas has long been known as a ripe scholar, an eminent teacher, and a terse and vigorous writer. His long editorial and professional experience conspicuously qualifies him for the preparation of such a work as this, and a brief examination of it convinces the reader that he has not miscalculated his ability. It is a book of over three hundred pages, enriched with many tables and formularies, with a great deal of untabulated information, the results of the extended experience and studies of the author. It is something more than a *materia medica*, for it contains a chapter on "Diagnosis" that is well worth the price of the book. Such useful information, compressed into almost epigrammatic paragraphs, is peculiarly welcome to practitioners who have not the leisure for extended study, and the book is full of it. We most heartily commend it to every one who is desirous of a complete text-book upon dental therapeutics.

LETTERS FROM A MOTHER TO A MOTHER *on the Formation, Growth and Care of the Teeth*; by the Wife of a Dentist. Mrs. M. W. J.

This series of letters, written by the author for the *Southern Dental Journal*, has attracted wide-spread attention for the easy and graceful style in which the letters are written, no less than from their eminently practical character. They contain a mass of information which it would be well for every mother carefully to study, and their republication in pamphlet form was in response to an imperative demand. Every alternate dentist has written and published chapters upon the management and care of the teeth, but nothing from the standpoint of the mother has appeared before, and that makes this series peculiarly valuable. There would be a marked improvement in the next generation of men and women if every parent would not only procure, but carefully study this little work.

From the technical standpoint of the professional man it is open to many criticisms, but it was written for popular and not professional reading, and we are not therefore called upon to point them out. It may be procured by addressing Judson & Dunlap, Atlanta, Ga. Price, \$1.50 per dozen.

ARCHIVES OF PEDIATRICS : *a Monthly Journal, devoted to the Diseases of Infants and Children.* Edited by WILLIAM PERRY WATSON, A. M., M. D. Jersey City, N. J.: \$3.00 per annum.

The mere mention of the name of this new journal is sufficient to indicate that it will fill a vacant place, and that to dentists especially it will be of inestimable value, the more so when it is known that so able a writer as Dr. Watson, assisted by a brilliant corps of collaborators, will conduct it. The initial number denotes that it will be of an unusually high order. We wish it the most abundant success.

THE ANALECTIC : *A Monthly Periscopic Summary of the Progress of Medical Science.* Edited by WALTER S. WELLS, M. D., New York. G. P. Putnam's Sons. \$2.50 per year.

To the busy professional man who has not the leisure to read all the principal periodicals, we can heartily commend this new journal. It is what its name indicates, a summary of all that is new and valuable in medical science; not simply excerpts, but condensations; the very pith extracted from extended articles.

We have only space to mention the following books and pamphlets received. At a future time we hope to make a more extended notice of some of them :

Transactions of the Dental Society of the State of New York. Fourteenth and fifteenth annual meetings, 1882-1883.

Transactions of the Ohio State Dental Society. Eighteenth annual meeting, 1883.

Woman. An Oration delivered before the American Academy of Dental Science, Boston. By Norman W. Kingsley, D. D. S.

Micrometry. Report of Prof. W. A. Rogers on the Standard Micrometer, Scale A, 1882.

A Consideration of the Merits and Claims of Artificial Crown-and Bridge-Work. By J. L. Williams, New Haven, Conn.

Annual Address delivered before the American Academy of Medicine at New York. By Henry O. Marcy, M. D., President of the Academy.

The Pathology and Radical Cure of Hay Fever, or Hay Asthma. By John O. Roe, M. D., Rochester, N. Y.

Internal Œsophagotomy. By John O. Roe, M. D., Rochester, N. Y.

Discussion of the Utility or Non-Utility of Local Applications in Chronic Catarrhal Laryngitis. By John O. Roe, M. D., Rochester, N. Y.

Infusion of Jequirity in Invertebrate Pannus. By Edward S. Peck, M. D., New York.

Concerning Records. By Geo. L. Parmele, M. D., D. M. D., Hartford, Conn.

Micro-Organisms the Essential Factor in Dental Caries. By C. T. Stockwell, Springfield, Mass.

On the Relations between Dental Lesions and Diseases of the Eye. By Henry Power, M. B., London, England.

Surgical Operations on the Pelvic Organs of Pregnant Women. By Matthew D. Mann, M. D., Buffalo, N. Y.

Treatment of Fracture of the Jaw. By Thos. Brian Gunning, D. D. S., New York.

The Reciprocal Attitude of the Medical Profession and the Community. By Alexander Hutchins, A. M., M. D., Brooklyn, New York.

Zahnärztliche Belehrungen fuer Laien.

(Dental Instructions for the Laity.)

By Dr. Adolf Petermann, Frankfort-on-the-Main.

Keine Narkosen—ohne Zeugen.

(No Anæsthesia without Witnesses.)

By Dr. Adolf Petermann, Frankfort-on-the-Main.

Zahnärztlicher Verein zu Frankfurt am Main. Officieller Bericht ueber die Festsitzungen.

(Official Report of the Dental Association of Frankfort-on-the-Main. May Meeting, 1881.)

The same for May, 1882.

Current News and Opinion.

MICHIGAN STATE DENTAL SOCIETY.

The annual meeting of the Michigan State Dental Society will be held in the city of Detroit, commencing the last Wednesday in March, 1884, and continuing two days. President, Dr. W. H. Dorrance, Ann Arbor; Secretary, Dr. J. B. McGregor, Port Huron.

The following papers will be read :

| | | | |
|---|---|---|----------------------|
| Prosthetic Dentistry, | - | - | Dr. Dorrance. |
| Atmospheric Dentures, | - | - | Dr. Land. |
| Diseases of the Gums, | - | - | Dr. Cleland. |
| Oral Surgery, | - | - | Dr. Case. |
| Histology, | - | - | Dr. Britton. |
| Methods and Materials for Filling Teeth | | | Dr. Moore. |
| Treatment of Deciduous Teeth | - | | Drs. Taft and Cowie. |
| Pulpless Teeth, | - | - | Dr. Douglas. |
| Exposed Pulpes, | - | - | Dr. Rowley. |
| Dental Caries | - | - | Dr. Shattuck. |

A cordial invitation is extended to all practicing dentists to be present.

VULCANIZING INDIA RUBBER.

Accidents have frequently occurred, especially in dental workshops, from the use of too high a temperature in melting and vulcanizing India rubber. Moreover, complicated apparatus is required for vulcanizing by dry heat. According to the *Moniteur Produits Chimiques*, this apparatus can be replaced by a bath of any liquid boiling at 140° or 150° C. (285° to 300° F.), at which temperature the sulphur unites with the rubber.

The cheapest salt for such a bath is chloride of calcium; but other solutions, such as acetate of soda and carbonate of potash, can be employed; also glycerine, oils, and paraffine. These liquids can be employed in ordinary metallic vessels. Of course, the India rubber and sulphur solution must be in an air-tight vessel, as before.—*Scientific American*.

STATE OF THE GUMS IN PREGNANCY.

M. Delestre has observed that not only in pregnancy, but during the menstrual periods, the gums in the female are congested, swollen and softened. The gingival troubles commence about the second month of pregnancy. Didsbury describes three degrees of gingivitis of pregnancy. In the third the gums are so inflamed that they have a reddish violet color, are swollen, and the interdental portion is clearly shown. Tartar and epithelial debris accumulate around the teeth. This inflammation may extend to the alveolar-dental periosteum, for the teeth seem to lose their lime, become elevated and may fall out. This gingivitis is situated particularly in the anterior portion of the jaws; it rarely goes back of the canine teeth. Only the convex surface of the jaws is attacked. The treatment should be energetic; the tartar should be removed and the inflammation treated by stringent preparations, chlorate of potash, etc., and in grave cases with tincture of iodine, chromic acid, and hydrate of chloral mixed with some astringent tincture.—*Jour. de Med. de Paris.—Med. News.*

"CAN'T AFFORD IT."

Such was the reply of a professional brother recently, when asked to subscribe for a dental magazine. Two dollars and fifty cents a year for a literary periodical. What a heavy tax! Hardly five-sevenths of a cent a day, to be sure, yet a monstrous sum of money to pay for reading matter.

To become the happy possessor of three of the leading dental journals published would cost about two cents a day; and who does not daily squander far more than that amount in divers ways?

Many members of our calling who imagine that they cannot afford to provide themselves with literary matter, somehow manage to procure sufficient means to lay in a stock of good cigars, attend places of amusement, and expend lavishly for other indulgences, a tithe of which would supply them with a goodly array of journals, from which they might derive much real, wholesome, practical benefit.

Think of this, ye who declare that you "cannot afford it."

C. E. F.

MISSISSIPPI VALLEY DENTAL SOCIETY.

The fourteenth annual meeting of this society will be held at the Ohio Dental College in Cincinnati, commencing Wednesday, March 5th, 1884, at ten o'clock A. M. The executive committee have presented the following programme:

1. Artificial crowns upon roots; best method of adapting them.
 2. What means are best adapted for maintaining the teeth and mouth in a healthy condition?
 3. What progress has been made in arresting and preventing decay of the teeth in the last five years?
 4. In what respect, if any, are decayed teeth better filled now than ten years ago?
 5. What valuable medicinal agents have been introduced into dental practice in the last three years? For what purpose is each one used?
 6. What improvements, if any, have been made in artificial dentures during the last five years; and what further improvements are desirable?
-

HE KNEW IT.

Dr. Miller * * * advocates the chemical theory of decay, as is shown by his published papers and by the letters of Prof. Wright in the January number of our journal. Of course, we expected nothing else, as we know that Dr. Miller was repeating substantially the same experiments we had tried between 1855 and 1862.—*Editorial in Ohio State Journal.*

What *will* this world do when Dr. Watt dies? It might have wobbled on for a while, had it not been for the more than Alexandrian holocaust, that most unfortunate fire that destroyed the records of all the really original experiments that this world is likely to know anything of for some time to come.

CHANGE OF LOCATION.

Dr. H. V. Wollison, formerly of Port Jervis, N. Y., a graduate of the New York College of Dentistry, has removed to London, and is now associated with Dr. J. J. Wedgwood, 15 George Street, Hanover Square, West.

COMPLIMENTARY.

We have no more of journalistic conceit than the next man, but we cannot resist the temptation to give place to the following very complimentary notice from that sterling journal, THE VIRGINIA MEDICAL MONTHLY, published at Richmond, Va.:—*Editor.*

“THE INDEPENDENT PRACTITIONER.”—We feel that we must speak a word of praise for this most excellent dental journal. Although of course our practice lies entirely outside of the domain of dentistry, there is scarcely one of our exchanges more carefully perused; and we take special occasion to mention the January number of the journal. The leading article by the American dentist, Dr. N. S. Jenkins, of Dresden, Germany, entitled “A Day’s Practice,” is one of the most readable professional papers we have met with for some time. We wish the editor, Dr. Barrett, of Buffalo, all the success he so well deserves.

DENTAL COLLEGE IN FRANCE.

For many years the standard of Dental Education in France has been at a low ebb, but the prospectus of a new Dental College, to be located in Paris, is now out, and from it we judge that a new departure is to be taken. *The Institut Odontotechnique de France* proposes to give to French dental students all the advantages offered in the American colleges and the English hospitals. Dr. E. A. Bogue, of New York and Paris, will occupy the chair of Operative Dentistry.

TEXAS DENTAL ASSOCIATION.

The annual meeting of the Texas Dental Association will be held in San Antonio on the last Tuesday in April. The programme has not yet been issued. We acknowledge the courtesy of an earnest invitation to be present.

NEW USE FOR ELECTRICITY.

A very convenient electric lighter is being sold throughout the country for only five dollars.

ANÆSTHETICS FROM A MEDICO-LEGAL POINT OF VIEW.

Dr. J. G. Johnson, of Brooklyn, comes to the following conclusions in the *Annals of Anatomy and Surgery*:

Anæsthetics do stimulate the sexual functions, the ano-genital region being the last to give up its sensitiveness. Charges made by females under the influence of an anæsthetic should be received as the testimony of an insane person is. It cannot be rejected; but the *corpus delicti aliunde* rule should be insisted on. Dentists or surgeons who do not protect themselves by having a third person present do not merit much sympathy.

Gross violations of the well-known rules of administering anæsthetics, life being lost thereby, will subject the violator to a trial on a charge of manslaughter.

A surgeon allowing an untrained medical student to administer anæsthetics, life being lost thereby, will subject the surgeon himself to a suit for damages. What he does through his agent he does himself.

The physician who administers an anæsthetic should attend to that part of the business and nothing else. He should have examined the heart and lungs beforehand. He should have the patient in the reclining position, with his clothes loose, so as not to interfere with respiration; should have his rattooth forceps, nitrate of amyl, and ammonia, and know their uses, and when to use them, and how to perform artificial respiration.—*Quarterly Epitome*.

A CORRECTION.

Last month, in an editorial notice of the dissolution of the firm of F. W. Leonard & Co., we perhaps left the impression in the minds of our readers that Mr. Leonard retires from business altogether. This is not the case, as will be seen by a reference to his new advertisement in this number.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Dr. W. St. Geo. Elliott, of London, has been elected resident member of the Council of the British Odontological Society.

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*The combination of medical agents, as presented by us, produces a remedy of peculiar antiseptic property, alike adapted to Surgery, Obstetrics, Gynecology, Laryngology, and all Zymotic or Febrile diseases, the best clinical testimony having established its safety **internally**, even in large doses, whilst its capability of dilution to varied strengths for local application demonstrates its power and scope.*

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BY FRANK M. DEEMS, M. D., Ph. D., *Late of University of New York.*

OTITIS MEDIA PURULENTA:

BY Prof. DUDLEY S. REYNOLDS, M. D., *Louisville, Ky.*

THE BEST METHODS OF TREATING OPERATIVE WOUNDS:

BY HENRY O. MARCY, A. M., M. D. *Boston, Pres. Amer. Academy of Medicine.*

Also clinical notes from the following and many other well-known physicians :

SURGEON GENERAL WALES, U. S. Navy; Prof. NATHAN S. LINCOLN, M. D., Washington, D. C.; Prof. JOHN A. OCTERLONY, A. M., M. D., Louisville; Prof. CHRISTOPHER JOHNSTON, M. D., Baltimore; Prof. JAMES NEVINS HYDE, A. M., M. D., Chicago; WM. PORTER, A. M., M. D., St. Louis; Prof. FESSENDEN N. OTIS, M. D., New York; Prof. W. W. DAWSON, M. D., Cincinnati; GEO. J. ENGELMAN, M. D., St. Louis.

HIGHLY RECOMMENDED FOR DENTISTS' USE.

LAMBERT & CO., Manufacturing Chemists,

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To the Dental Profession.

GENTLEMEN :

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

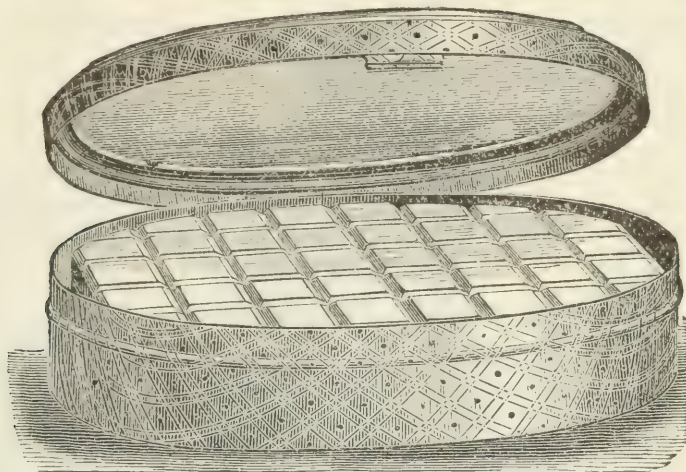
I. W. LYON, D.D.S.,

61 CEDAR ST., NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

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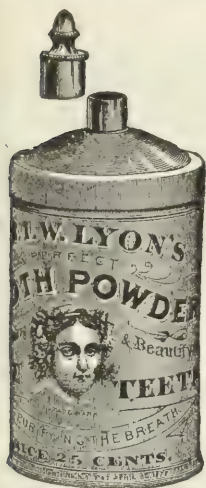


For Purity, Efficiency, Neatness and Convenience these Tablets have no equal as a Dentifrice. They are put up in Seamless Metallic Boxes, which are impervious to air and moisture, and may be carried on a journey without danger of breaking.

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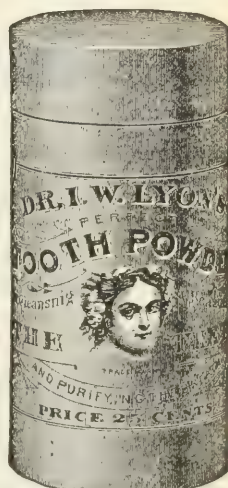
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This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

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The most honest objection heretofore made to amalgam is that it turns black and is liable to stain, disfigure and even destroy tooth structure. *This need not be*; for there are metals which, combined and amalgamated with *chemically pure mercury*, do not oxidize or tarnish, even under the most adverse circumstances. And, if previous to use, it has been ascertained that the salts (oxides) of the metals are not soluble in the menstruum circulating in the tooth they will not, *cannot* affect the tooth structure.



Heat expands metallic substances. When an alloy has been amalgamated in the palm of the hand the operator will observe that heat is evolved. Now, if this is allowed to depart (said Dr. Whildon Foster, of Baltimore, in criticism of an essay by us), if this heat is allowed to depart previous to its introduction into the cavity, it will not then contract; for crystallization at low temperature is not a process of contraction. A familiar example is the freezing of water and the consequent bulging and bursting of the containing vessel or pipe.

The following named gentlemen endorse it, and we use their names by permission:

| | |
|---------------------------------------|--|
| Dr. JOHN B. RICH,.....NEW YORK. | Dr. E. PARMLEY BROWN,....FLUSHING, L. I. |
| Dr. W. D. TENISON,....." " | Dr. J. BOND LITIG,.....NEW YORK. |
| Dr. C. S. STOCKTON,.....NEWARK, N. J. | Dr. WM. F. DAVENPORT,....." " |

And many other prominent Dentists.

When amalgamating this alloy the best results are obtained when the minimum amount of Mercury is used, 2 gr. of Mercury to 6 gr. of Alloy.

When used in these proportions it has a remarkably fine grain, packs very close, takes and retains a beautiful white finish, which is a property unknown in other amalgams. **It contains the five essential elements for Good Color and Edge Strength.**

Oliver B. Dawson

NEW YORK, July 16, 1883.

DR. OLIVER B. DAWSON, DEAR SIR:--I have received a large number of letters of inquiry in relation to your White Alloy. These letters remain unanswered for the reason that I have not had the time to reply to them. But it would give me great pleasure to express in some way, the satisfaction I have experienced in the use of the Amalgam made with it. In the proportions in which I use it, one-fourth Mercury to three-fourths Alloy, it produces the best plastic filling I have ever constructed. Becoming very hard and tough, it is susceptible of receiving a high polish, and does not shrink under severe tests. In color it is a very light grey, which does not change in the mouth. Possessing, as it certainly does, in an eminent degree, the above valuable qualities, I consider it the best alloy I have ever used.

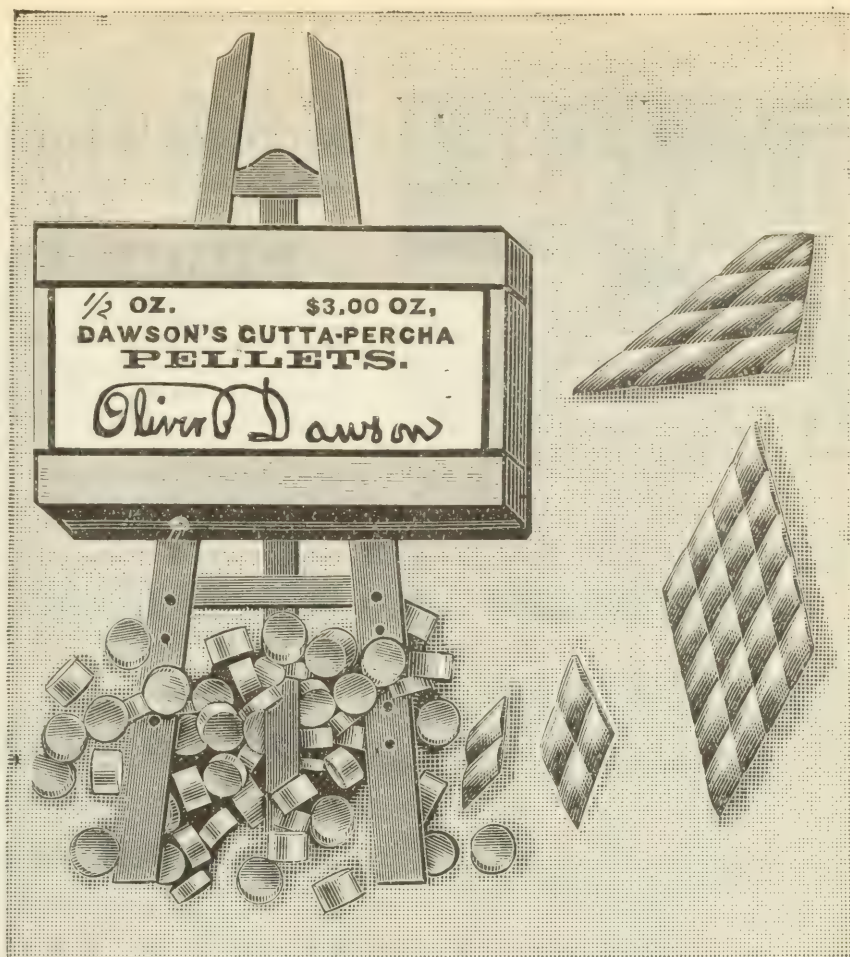
Very respectfully,

JNO. B. RICH.

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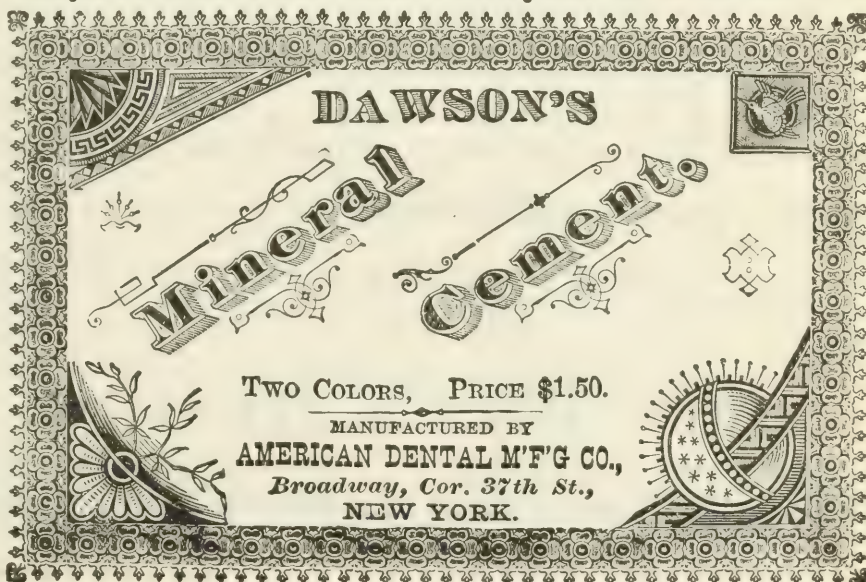
We quote below a few remarks from our last letter from Prof. J. Foster Flag;

Dr. O. B. DAWSON: DEAR SIR,—The sample of Gutta-Percha Stopping you last sent me is the toughest that I have ever worked, and seems to possess so much merit that I would like to know more of it. * * * * Is the result due to an exceptionally good Gutta-Percha? * * * * If you can make such Stopping as you sent, I should be pleased to aid you in bringing it before the profession in a very decided manner, etc., etc.

Truly yours,

J. FOSTER FLAGG.

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A trial will convince you of its Extreme Hardness and Resistance to Corrosive Agents.

It is known and used by hundreds of operators in the Eastern and Middle States, to whom we respectfully refer.

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Dr. Stutzer, Director of the Imperial Agricultural Chemical Laboratory for Rheinisch Prussia, Bonn, in a long and interesting article in the *Pharmaceutische Centralhalle* on the nourishing powers of various natural and artificial foods for infants and invalids, gives the following results as far as concerns their nitrogenous nutritive constituents:

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“ Dr. Stutzer further exposes the often exposed superstition about the nourishing powers of beef tea. He shows that we would have to take half a gallon of beef tea, made with a pound of beef to each pint of water, before we get as much nourishment as is contained in a quarter of a pound of steak.”—*New York Medical Times*.

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THE

Independent Practitioner.

VOL. V.

APRIL, 1884.

No. 4.

Original Communications.

ADDRESS.

TO GRADUATES OF THE PHILADELPHIA DENTAL COLLEGE AT THE TWENTY-FIRST
COMMENCEMENT, ACADEMY OF MUSIC, PHILADELPHIA, FEB. 29, 1884.

BY PROF. S. H. GUILFORD, A. M., D. D. S.

Gentlemen of the Graduating Class:

The last act of your student life has been performed, and at the hands of the President of the Board of Trustees you have received your diplomas, as evidences of your fitness and qualification to practice the profession of your choice. The faculty of the Philadelphia Dental College have selected me as their representative to tender you their congratulations (warm as heart can wish), upon the successful completion of your college course.

In the years you have been with us your powers of body and mind have both been sorely taxed by your arduous daily duties, but through it all you have been supported and encouraged by the hope that when this time should come, you might be accounted worthy to stand upon this stage and receive the evidence of your proficiency. Your hopes have been realized, and we rejoice with you in your success. The distinction that existed between us as teacher and pupil

is now removed, and we stand upon one common level. As practitioners of dentistry we welcome you to our ranks.

Yesterday you were students; to-night you go out from among us to enter the arena of public life, there to win such success as may lie in your power to attain.

The change, gentlemen, from student life to active practice, will be a great one. Up to this point in your studies and in your work you have had constantly by your side those who could and did advise you when you needed help. Now you will be thrown upon your own responsibility and resources, and must stand alone. Your own judgment must guide you, and your own skill be your support. Your lot will be a hard one, as it always is in the earlier years of a man's professional life, and yet, as others have gone through the struggle successfully, why may not you? As you stand here to-night, on the threshold of your professional career, before we extend the hand of parting and you go out from under the parental roof, it may not be amiss to impress upon you some truths and facts that may aid you in your career.

Each one of you starts out with a fixed determination to be successful in life. But, gentlemen, let me ask you, what do you mean by success, and what idea does the word convey to your mind? Is it the idea of the vulgar world that success means the gathering of money; or is it that higher and nobler idea that success is measured by the amount of good done?

The man who enters professional life for the sole purpose of gathering riches, recognizing nothing nobler and higher in it, debases his profession and prostitutes himself. His object is ignoble, and his methods will surely be base. Such an one, and their number is great, will turn back the wheels of professional progress in a twelve-month more than they can be advanced in a decade. The world would be better if he had never been born. It is the philanthropic or humanitarian element in professional life that helps to distinguish it from the purely mercantile, and he who eliminates this element from it changes its character and destroys its identity.

True, money-getting is a right and proper motive when properly controlled, but the professional man who makes it his chief or only

object utterly fails to appreciate the true intent of his vocation. Be assured, gentlemen, that professional success consists in the measure of good we do unto others; in the amount of suffering we alleviate, and the degree of happiness and comfort we are capable of administering. Do not fear that in thus carrying out the lofty and true ideal you will suffer, for philanthropy, like charity, is twice blessed, in that it blesses him that gives as well as him that doth receive. He who works up to the highest ideal will have his efforts appreciated, and money and fame, besides peace of conscience, will be added unto him.

But you ask, how shall we attain this success? The conditions of it, gentlemen, are easily understood. The principles that underlie it in your vocation are the same as those that condition it in every department of life.

First, you must impress yourselves with the idea that your calling is the greatest of all callings. Unless you properly appreciate the importance of it, you will never bring out the best that is in it. The enthusiast in his work, whatever that work may be, is the one who usually meets with the greatest measure of success.

Next, it is necessary that you possess the requisite knowledge and skill to enable you to perform your professional duties in the best and most acceptable manner. This ability, or so much of it as you are able to obtain outside of the hard school of experience, we believe you to possess. To obtain it you have passed through your long period of pupilage; your studies have covered the widest range; your clinics have been of the most varied and comprehensive character, and the opportunities to put into actual practice the methods taught have been the greatest we could give you.

The last condition is untiring industry. Well-directed effort is one of the very largest factors in the equation of success. Success is rarely, if ever, attained without it, no matter how great the natural ability, whilst with it, even mediocrity rises to a high plane and secures a commanding position. Hard work, gentlemen, is the great thing that tells in life.

Many, and young men especially, are apt to attribute the success of men who have attained a high position in life to their possession

of genius, or some special qualities denied to the majority, apparently forgetting that—

“ The heights by great men won and kept
Were not attained by sudden flight;
But they, while others peaceful slept,
Toiled slowly upward in the night.”

Activity is the great need of the day, and the lack of it is almost sure to result in failure.

The great and absorbing idea of most young men on starting out in professional life, is to secure a practice and gain a competency. This, of course, is your first need, but practices come slowly. Few men start in with much to do. The world, when you begin, does not need you half as much as you thought it did. In the earlier years of your practice you will have more unoccupied hours than busy ones. How these spare hours are spent often determines the future success or failure of the individual. Spent in idleness and useless repinings over not having more to do, they will be to you a source of great unhappiness and discontent; but spent in useful activity, they will be of the greatest possible advantage to you.

Ah! gentlemen, these spare hours in the beginning of your practice, that you are apt so greatly to deplore, are hours of golden opportunity. True, you cannot turn them to immediate money account, but they will bring you a good return in the end if you but rightly employ them. Be wise, and learn this in time.

Do you ask me how you shall employ them? I answer—use them for the pursuit of knowledge. If you have employed your time to the very best advantage thus far, what you now know is but a fraction of what you may know. We all feel justly proud of the advance in knowledge made by our profession in the last fifty years, but there is much still that we do not know, and that we are anxious to learn. You have it in your power to shed light upon much that is at present shrouded in darkness, if you will but make the effort. Your spare hours in early practice will afford you the opportunity, and chemistry and microscopy will afford you the means. These two helps will prove the best friends for your advancement in knowledge and fame that you can possibly have. Use them well

and use them diligently, and the full effect of their influence will only be fully realized later on in life.

They will enable you, as they have others, to penetrate the mysteries of life and being, to know the causes of existing conditions, and open the way to the discovery of their remedies. Forty years ago a student of medicine at the College of France was presented by a fellow student with a microscope which he no longer needed. The young man knew nothing of the construction of the instrument, and very little of its use. He felt no need of it, but, offered as a present, he could not well decline its acceptance. He studied, first its construction, and then set about to learn how to use it. A remark that he one day overheard, made by a quack physician, as to his idea of the origin and transmission of disease, led him into a series of examinations and experiments, which, continued unremittingly for a long time, led to the establishment and elucidation of the germ theory of disease. The young man that then was, is now M. Pasteur the distinguished French scientist, member of the French Academy, and one whose name is honored wherever the name of science is known.

On the cover of one of our journals you will notice the inscription, "Observe, Compare, Reflect, Record." Take this as your motto, and let its precepts be your guide in the pursuit of knowledge.

It is one thing to see, and quite another to observe. Many do the former, few the latter. Observation carries with it in its meaning a seeing closely, and with such exactness as to leave a strong impress upon the memory. Many an important fact or condition in scientific or professional life is unnoticed or passed by through lack of careful observation. Close observation is one of the foundation stones upon which the structure of science is reared. Cultivate it, therefore, for without it you build in vain. Things that seem trifling to us at the time may, and often do, become of immense moment to us in the course of years.

Toward the close of the last century, two young students at the French military school of St. Etienne happened to be sailing on a river near by. One of them, with one hand on the tiller and the other grasping the main-sheet, was sailing the boat in its zigzag

course against the wind. The other was occupied in lazily paying out and hauling in a long cord that he held in his hand. He who was sailing the boat reproved his companion for his listlessness, and begged him desist from his idle play. The other refused, saying that he had set out to determine the width of the stream by triangulation and measuring the length of the vessel's course, and he was bound to complete it.

It seemed like an idle fancy to spend his time thus, but twenty years later when he appeared upon the same scene as Napoleon Bonaparte, and planted his cannon upon one bank of the river, his knowledge of the exact width of the stream enabled him to so sight his guns as to speedily reduce the fort on the opposite bank that had been attempting to impede his progress.

Observation, however, in your own line of work, will not be sufficient to accomplish the end you have in view. It must be supplemented by the observation of others. What they have done you will find in the literature of the profession, in its text books and periodicals. Consult them and study them well. The result of no one man's work is sufficient to establish important truths. Each one is liable to err in his researches and deductions therefrom, and it is only by a careful comparison of our own investigations with those of others that errors can be eliminated and truths established. But what you arrive at in this way you must not trust to memory to retain. Memory is a fickle faculty, and we dare not depend too much upon it. If it be important to ascertain truths, it is quite as important to preserve them. This can only be done by systematically recording them, so that they may be preserved to you and may benefit others. What you have learned in your studies and attendance upon lectures has not been drawn from the knowledge of a half dozen men, but represents the wisdom and learning of all those who have preceded you in professional life, culled for your benefit, and presented in a form to be received and appreciated by you. In thus accepting the combined results of those who have gone before you, you are placed under a virtual obligation to contribute your portion of knowledge for the benefit of those who come after you. See that you discharge this obliga-

tion with fidelity. Your first duty is toward yourselves, but after that comes your duty toward others—a giving, as it were, in return for what you have received. Such contribution, on your part, to the general fund of knowledge, while it benefits others, will not be without reflex influence upon yourselves. In proportion as you gain knowledge and give it to the world will you receive honor in the eyes of your associates. Your knowledge and diligence, added to your trained habits of study and observation, will make you valuable, and lead to your being placed upon the list from which the leaders of the future are to be chosen.

Be ambitious, therefore, to excel, and strain every nerve to play well your part upon the theatre of the world's action. Those who now occupy the places of professional preferment will, in a few short years, be obliged to give place to other and younger men, and when that time comes those best fitted will be the ones selected.

That great financial institution, the Bank of England, is governed by twenty-four directors. They are chosen for life, and their position is one of envied prominence and responsibility. As each one dies or retires his place is filled by a young man, so that he may grow up and become thoroughly identified with the workings and interests of the institution. The choice of a successor seems in each case to be quickly made, but it is not so in reality. The many young men of business in London, unconsciously to themselves, are being constantly watched, for from their number must come the one to fill the next vacancy that may occur in the directorship. Their diligence, their honesty, their business capacity are all noted, and the selection for the next place is secretly made long before the necessity for it exists.

So, gentlemen, do not imagine that as you go out from the institution to-night you go out to be forgotten or lost sight of. The eyes of your old teachers and those who know you will follow you and rest upon you. Your course in life will be closely watched. If you do well we will all rejoice in it, and if you do ill our hearts will be filled with sorrow. We all love our profession and wish for its advancement; but remember that a profession can only be advanced in proportion to the advancement of its members.

To-night has initiated you into such membership; see that you prove yourselves worthy of it. Remember your duties to your profession, and remember also your duty to your Alma Mater. What credit you gain in life will in a measure be reflected upon her; whereas, if lack of honor should be your portion, she will have to suffer with you.

Of the many hundred graduates who have gone forth from our institution in the twenty-one years of its existence, a large proportion have risen to positions of prominence in their calling. Will you add to the number? As I look into your upturned faces to-night, many of whom we may not see again until time has left its mark upon them, I am reminded more than ever of the cosmopolitan character of those who year after year comprise our classes. Our own country is represented here by States bounded only by Maine and Texas, and the Atlantic and Pacific coasts. Canada and Nova Scotia, from the far north, are here, and tropical Mexico has her representative. From across the ocean Prussia, and Germany, and England, and Scotland have sent their sons, and even the isles of the sea, sunny Cuba, and far-off Australia are here represented. When you came to us from so many lands you came as strangers. The ties that at first bound us together, attenuated as they were, have, through long and intimate communion, grown to strong cords, and we find them hard to sever. Still, hard as it is to sunder our relations as teacher and pupil, it must be done. You must needs go out to do the work that awaits you, and others are waiting to take your place. We bid you go then, and God-speed, for if you will but live up to the measure of your abilities the world has need of you. Be filled with enthusiasm for your work, and be guided by a laudable ambition, remembering meanwhile that—

“ Not without toil is fame’s bright palace won,
Nor glory’s race with faltering footsteps run.
The richest fruit the highest bough adorns;
The loveliest rose is guarded most by thorns.
Deep in the ocean precious pearls do shine;
The brightest diamond seeks the darkest mine;
And that which is with greatest toil possessed
We prize the longest and we love the best.”

IODOFORM IN DENTAL SURGERY,

BY C. F. W. BODECKER, D. D. S., M. D. S., NEW YORK.

(Continued from page 141.)

M. Schede (*Centrbl. f. chirurgie*, No. 3, 1882), who is known to have observed the greatest number of cases of poisoning by iodoform, describes six different forms of the same. The most common phenomena are: a considerable elevation of the temperature, up to one hundred and four degrees Fahrenheit, without noticeable disturbances of the general health of the patient, manifesting itself soon after the iodoform has been applied. The symptoms of another form, as described by M. Schede, are: great mental depression, headache, loss of appetite, and the taste of iodoform in everything taken into the mouth; the pulse is accelerated and small, but after the removal of the iodoform these symptoms soon disappear. A third variety is mentioned in which was observed a great frequency of the pulse (from one hundred and fifty to one hundred and eighty per minute), with relatively little disturbance of the patient's general health. But in the fourth form he observed in connection with frequent pulse a corresponding rise in the temperature. This form, says M. Schede, might be mistaken for septicæmia, although in iodoform poisoning the wound is perfectly aseptic, the tongue red and moist, and sensorium clear. A fifth form is mentioned, but as this occurred after extensive surgical operations, its etiology is doubtful. The symptoms of the sixth variety are: disturbances of the functions of the brain, appearing either as phenomena of acute meningitis or actual brain diseases. The symptoms of acute meningitis were met with mainly in young patients; they present themselves as an accelerated pulse, vomiting, depression of the sensorium, sometimes to a degree of complete coma, and contractions of certain groups of muscles. Schede regards it unsafe to completely fill the cavities of large fresh wounds with iodoform, as it adheres to the tissues in such a manner that, if alarming symptoms should present themselves, its removal may be found difficult.

Hoefman (*Centrbl. f. chirurgie*, No. 7, 1882) is of the opinion that the danger in the use of iodoform is connected, to a certain

extent, with the form in which it is applied, as in the clinic of Königsberg, among one thousand patients treated with iodoform in the form of crystals, not a single case of poisoning was observed, although in one of them Gm. 50,0, = 312, grs. 30, was used. But in two other cases, in which the iodoform had been applied in the form of a powder, death ensued, with the symptoms of mania, retention of the urine and very high pulse. In one of these cases, after the extirpation of a cancerous breast, Gm. 20,0, = 35 of the iodoform powder was applied; another after ovariectomy where Gm. 25,0, = 36, grs. 15, had been made use of.

Dittel (*Anzeiger d. k. k. Gesellsch., d. Aerzte in Wien*, No. 25, 1882), who on an average treated nearly two thousand patients annually, never observed grave symptoms of iodoform poisoning, and only in exceptional cases loss of appetite and restlessness was noticed.

Mosting (*Anzeiger d. k. k. Gesellsch., d. Aerzte in Wien*, No. 6, 1882) observed, in the treatment of 5,000 patients, not a single case of poisoning by iodoform. He, however, used the precaution not to fill large wounds or cavities, but merely applied a thin layer.

H. Singer (*Wien Med. Press*, Nos. 15, 16, 17, 18 and 19, 1882) mentions that some patients can bear enormous doses of iodoform without the slightest sign of poisoning. Although in some instances he completely filled large cavities, and mentions a case where, in a compound fracture of the femur of a boy twelve years old, at least Gm. 150,0=about 3ivss. of iodoform had been used without evil results.

Hofmohl (*Anzeiger d. k. k. d. Aerzte in Wien*, No. 6, 1882), who used iodoform in 200 cases, of which fifty-six were children, observed two or three cases of poisoning.

Czerny (*Wien Med. Wochenschr* No. 6, 1882) regards iodoform more dangerous than carbolic acid as a dressing for wounds. He observed fatal results after the use of Gm. 40,0=about 310, and very dangerous symptoms when only Gm. 6,0=90 grs. had been applied. He is of opinion that the danger of poisoning depends more upon the extent of the wound and the presence of fat than upon the quantity of iodoform employed.

Konig (Centrbl. f. chirurgie Nos. 7 and 8, 1882), who has furnished interesting statistics, states that grave consequences as a rule are not observed unless more than Gm. 10,0=about 3iii of iodoform has been applied. Although one case is reported where only Gm. 1,0=about 15 grs. were used, which was followed by bad symptoms. The age of the patient according to Konig is of the greatest importance.

The older the patient the greater is the disposition to iodoform poisoning. In fifteen slight and thirteen severe cases of iodoform poisoning, eleven of the patients were under thirty-five years of age; six between the ages of thirty-five and fifty; four between fifty and sixty; and eleven patients were over sixty years of age. As to the prophylaxis, it is important to note carefully the frequency of the pulse immediately after the application of the iodoform, a steady high pulse is always observed prior to the development of brain symptoms, and in these instances the iodoform should be immediately removed.

In dental practice iodoform is as yet not in general use, although those practitioners who have employed it praise it very highly. As a remedy in chronic pulpitis, a capping for exposed pulps, a dressing in oral surgery, and in some instances a preventive against an acute alveolar abscess, we possess no drug which, in its action, is as certain as iodoform. Every dental practitioner knows how annoying it is to see patients with an acute alveolar abscess, especially when this occurs in teeth, the pulps of which have been dead for some time, and which, previous to the opening of the pulp chamber, had given no trouble. I know of no remedy which will prevent this as surely as the saturated solution of iodoform in ether, when used in the proper way. In some instances we can open the chamber of a pulpless tooth, which usually contains a great deal of septic matter, clean it out, fill it at once, and no trouble whatever will arise. In these cases the end of the root is encysted, and any kind of filling material, or even no filling at all, will answer the purpose. In other instances, however, when the pulp canal in the end of the root is open, and no encystment present around the apex, an acute alveolar abscess in the majority of instances follows the opening of

the pulp chamber, even if no attempt has been made to enter the pulp canal with an instrument. The formation of an alveolar abscess in these instances, I believe, is due to the entrance of air into the pulp canal. I have for nearly three years been very successful in such cases, and a number of my professional friends who have pursued the same line of treatment have met with similar results. My proceeding is as follows :

I drill a hole into the tooth or filling toward the pulp chamber, until it very nearly reaches it. I fill this drill hole with a saturate solution of iodoform in ether (about 3i of iodoform to 3i of sulphuric ether), and very quickly, before the ether is evaporated, pierce the remaining septum of the pulp chamber. I then fill the pulp chamber loosely with a piece of cotton saturated with the iodoform solution, and temporarily seal it. This plug I allow to remain from three to five days before I attempt to clean out either the pulp chamber or the root canal. After this time has elapsed, I remove the temporary plug, together with the cotton, make the pulp canal accessible, and as straight as possible, without interfering with the strength of the tooth. I then clean out the pulp chamber, at the same time cutting away all superfluous dentine, and thoroughly rinse it out with water. I apply the rubber dam, dry the cavity, and if the canals are accessible I at once proceed to clean and fill them, in the manner to be mentioned hereafter. If, however, the tooth presents any inaccessible narrow or curved canals, such as we meet with in the buccal roots of upper molars and first bicuspid, the mesial roots of lower molars, and most of the roots of wisdom teeth, I introduce one or two drops of an aqueous solution of chloride of zinc (about forty grains to the ounce of water), and temporarily seal the cavity with a mixture of gutta percha and wax for about twenty-four hours. When I see the patient again, before I remove the temporary plug, in order to exclude the entrance of the saliva into the canals, I apply the rubber dam. Then I remove the temporary filling, apply a few drops of absolute alcohol, dry the cavity out again, and moisten it with the solution of iodoform in ether. Now I begin to clean out the pulp canals, either with Donaldson's nerve extractors, a smooth nerve broach, the tem-

per of which has been previously drawn, a Gate's drill, or any other suitable instrument. When the canals are as clean as I can get them with instruments, I again wash them out with absolute alcohol and dry them by means of a non-barbed pivot broach, around which I wind a few fibers of cotton, which I repeat until the cotton comes out of the canal perfectly dry and clean. I then again apply a drop or two of the saturated solution of iodoform in ether, and quickly pump it into the canal. The next step is the introduction of the filling into the root canals, for which, in my opinion, there is probably no better method nor material than that mentioned by Dr. H. J. McKellop and Dr. W. C. Barrett—(Transact. Am. Dent. Ass., 1879.)

Whenever we hear of anything new, however good and practical it may appear, we adopt it in our practice with some hesitation, or even suspicion. This was the case with me before I began to fill root canals with a solution of gutta percha in chloroform. However favorable this material appeared to me then, I could not make up my mind to adopt it without first experimenting with it out of the mouth. I took two lower bicuspid roots which had just been extracted; I removed everything out of the canals by means of a burr, after which I filled one of these roots with solution of gutta percha without any further delay. The canal of the other root, however, after it was drilled out, I washed out thoroughly with absolute alcohol before the gutta percha was introduced. After two or three days, when the filling material had hardened, I split both these roots, and by placing them under the microscope found that where I had used absolute alcohol for the dehydration of the pulp canal previous to the introduction of the filling material, the dentinal canaliculi were filled for a little distance with gutta percha, whereas in the other root I could see no gutta percha in the dentinal canaliculi. The results induced me to lay aside all other filling materials for filling root canals. The method of introducing the filling is as follows: To an ounce of a rather thin solution of gutta percha in chloroform, I add about 3i of powdered iodoform; of this solution I introduce one or two drops into the pulp canal, and with a smooth broach force it up to the apex. This solution is succeeded

by very thin pieces of previously warmed gutta percha, which, by means of a little thicker instrument, are forced into the pulp canal until it is completely filled. If the foramen in the end of the root is somewhat large, I saturate a piece of cotton, wound around a smooth nerve broach, with the solution of iodoform; let the ether evaporate; dip it into the solution of gutta percha, and force it into the pulp canal up to the apex of the root, and follow this by small thin pieces of warmed gutta percha.

If the opening in the end of the root is as large as the canal, I make a shoulder as near to the apex as possible, by enlarging the pulp canal, which, in a straight, accessible root, can be done safely as follows: The exact length of the tooth I obtain with a thin Donaldson's nerve bristle, on the end of which is a very fine hook; around this instrument I wind a few fibers of cotton, about as far from the hook end as I expect the tooth to be long; I pass this instrument into and through the pulp canal, and let the little hook take hold upon the apex of the root. I then adjust the cotton in exact length with the cutting edge of the tooth, withdraw this instrument, and mark the length of the tooth upon a thin bud-shaped or round burr, with which I enlarge the pulp canal up to about one sixty-fourth of an inch from the end of the root. I then fill the root in the same manner as before described.

I have exclusively employed the above described method of filling and treating pulp canals since July, 1881, and in order to obtain an idea of its comparative value, I have classified the teeth so filled in their regular order, namely:

| UPPER | LEFT | RIGHT | LEFT | RIGHT | LOWER |
|-------------|------|-------|------|-------|-------------|
| Centrals | 5 | 8 | 3 | 1 | Centrals |
| Laterals | 7 | 7 | 2 | 1 | Laterals |
| Canines | 6 | 9 | 1 | 2 | Canines |
| Bicuspid I | 20 | 9 | 3 | 5 | Bicuspid I |
| Bicuspid II | 13 | 16 | 6 | 12 | Bicuspid II |
| Molars I | 14 | 9 | 15 | 12 | Molars I |
| Molars II | 9 | 9 | 12 | 7 | Molars II |
| Molars III | 3 | 2 | 2 | 1 | Molars III |
| | 77 | 69 | 44 | 41 | |

In all there are two hundred and thirty-one pulpless teeth, of which seventy-seven were in one of the stages of an alveolar abscess

before the treatment was commenced. Of all of the cases treated, sixteen were followed by an alveolar abscess after the introduction of the filling material, of which seven yielded to treatment, but nine teeth had to be extracted. A short history of these is as follows:

Miss R., age about twenty-eight, good constitution. Right lower first molar, with chronic alveolar abscess; the tooth had been previously filled. The pulp canal of the anterior root was found to be inaccessible; the tooth was treated and filled in the manner described, but the abscess did not abate. After five months the tooth was extracted, when I found adhering to the anterior root a rather large pyogenic sack, but the posterior root was comparatively healthy.

Mrs. S., age about twenty-six, good constitution, left lower first molar. The tooth had been filled four years previously, and ever since presented signs of slight pericementitis. The pulp canals were found to be filled with amalgam, which was easily removed out of the posterior root, but the anterior root could not be explored. The tooth was treated and filled as described above, but without much improvement; when four months later it was removed, I found an abscess on the anterior root.

Miss K., age about twenty, very anæmic, right lower first molar, with an acute alveolar abscess; the tooth had not been filled before, but was much discolored; it was treated and filled as mentioned above, when the abscess healed up, but soon an acute abscess again developed. When the tooth was extracted, both roots were found to be corroded at their apices.

Mrs. S., age about twenty-two, good constitution, in the fifth month of pregnancy. Right lower second molar with an acute alveolar abscess. The tooth contained a large gold filling, and the pulp had died. Treatment and filling as before mentioned, but an acute abscess again developed one day after the filling; when the tooth was extracted, the roots were found to be comparatively healthy.

Mr. H., age seventy-four, very good constitution. Left lower second bicuspid with a chronic alveolar abscess. The tooth was perfectly sound, except that it was worn down upon the grinding

surface; the pulp chamber was found to be very nearly obliterated by secondary dentine. The canal was treated and filled as mentioned before, but without success; when the tooth was extracted the root was found to be corroded at the apex.

Miss K., aged about seventeen, very anæmic. Left lower second molar contained a medium-sized gold filling in the grinding surface. The tooth was affected with a chronic alveolar abscess; it contained only one pulp canal, which was funnel shaped toward the apex of the root and very large.

Treatment as before, except that in the root canal a shoulder was made in the manner heretofore described, and a piece of cotton, saturated with the solution of gutta percha, was packed against the shoulder before the solid gutta percha was introduced. After three weeks the tooth had to be extracted, when it showed several large corroded concavities on the root.

Mrs. A., age thirty-five, good constitution, in the fourth month of pregnancy. The patient complained of pain in all the teeth, but particularly the right lower second molar, which was pulpless, and had been filled previously. The filling was removed, and the canals treated as above mentioned, but without success. The tooth was extracted, which, however, only afforded temporary relief; the roots were found to be comparatively healthy.

Mr. H., age forty-five, good constitution; right lower first molar contained a large oxychloride filling in its distal surface; the pulp had died, but no pericementitis was observable. The pulp chamber was small, the anterior canal quite inaccessible, and the posterior only partially so; treatment as before described. One year later a chronic alveolar abscess developed, when the filling was removed and another attempt made to open the pulp canals, but with no more success than in the first instance. The tooth was then treated with a solution of chloride of zinc for two weeks, and again filled, and the abscess treated locally, which soon healed up nicely. But after two months and a half the patient came back with the same trouble, when he insisted upon its extraction. Both roots were very flat, much curved, and the pulp canals somewhat accessible from their apices.

Mr. K., age about thirty-five, nervous constitution; right upper third molar in which the pulp had been devitalized two years previous by arsenious acid; it was temporarily filled with gutta percha, and the pulp chamber contained a piece of cotton. The tooth showed signs of a beginning pericementitis; neither of the canals was accessible, nor could be made so on account of the position of the tooth. It was treated and filled as mentioned above, but about one month later an acute alveolar abscess developed, when it had to be extracted.

To sum up the results, we come to the conclusion that teeth of which the alveolus and surrounding pericementum have not been destroyed too far by chronic inflammation, and which contain accessible pulp canals, can as a rule be saved by the method mentioned above. As exceptions to this may be mentioned systemic disorders, which bring about disturbances in vascular currents, viz., pregnancy, pyorrhœa alveolaris, etc. I have observed that pulpless teeth, when affected with the latter disease, in the majority of instances will be followed by an acute alveolar abscess after the pulp canal has been filled, unless an encystment of the apex of the root is present.

This shows that iodoform is a valuable remedy in the treatment of pulpless teeth. It is, however, not less so in the treatment and capping of exposed pulps, but as this subject is very important and cannot be summarily treated, I prefer to write upon this subject at some future time, and for the present merely allude to it, as in a former paper. (Dental Cosmos, 1882.)

Since July, 1881, I have capped 133 exposed pulps, of which ninety-seven were capped with iodoform, and thirty-six with a five or ten per cent solution of carbolic acid mixed with oxide of zinc, succeeded by a layer of Witzel's carbolic acid cement,* over which I

*The formula for Witzel's carbolic acid cement is as follows:

R \acute{e} Acid. carbol., 5·0;
Alcohol. absol., 2·0;
Aq. dest., 40·0;
Glycerinæ, 20·0.

Mix, and add an equal volume of the zinc chloride used in preparing oxy-chloride fillings. To a sufficient quantity of this mixture add oxide of zinc to give it the necessary consistence for filling.

generally place oxyphosphate or gutta percha. As far as I am able to state I have met with thirteen failures out of the 133 pulps capped. Of these were three teeth in the mouths of pregnant females, four in wisdom teeth, one in the distal surface of a second molar, two in the distal, and one in the mesial surfaces of first molars, and two in distal surfaces of bicuspid.

The iodoform in shape of a powder is not well adapted for capping pulps; I have therefore used it in three different combinations :

I. In the form of a paste (Paschkis).

℞ Iodoform pulv.,
Kaolin pulv., aa 4·00,
Acid. carbol. cryst., 0·50.

Mix; add sufficient glycerine to form a paste; then add ol. menth. pip., gtt. x.

II. Iodoform powder mixed with oil of eucalyptus ; and—

III. Iodoform powder rubbed up with vaseline.

ON THE DISPOSITION OF TIME AND ITS RELATION TO FEES

BY A. W. HARLAN, D. D. S., CHICAGO, ILL.

The disposition of time by allotment to patients is, especially to a young dentist, very easy of accomplishment; but a time arrives in his history, if he has attained the practice which always comes to the earnest student and industrious worker, when it sadly perplexes him, and unless he is unusually methodical, he is apt to undertake a great many operations without much thought that one appointment may be so limited that he will be free for undertaking the next. This is a question which has given me no little concern, and the only reason I have chosen it for my theme has been to get a free and full interchange of views from gentlemen, many of whom are my seniors in age and experience, that in future I may be enabled to extricate myself from some of the dilemmas in which want of time may involve any of us.

Operating, as I have done for years, a certain number of hours daily at the chair, I am forced to a personal study of this subject.

I have not gained much information from my brethren as to how they conduct a practice; so I have adopted my present method from necessity. My day usually begins at eight-thirty A. M., and I have found from long experience that as a rule it is best to have a male patient to commence with, and an appointment of one hour to one hour and a half is generally made. It is devoted to the preparation of cavities, cleaning teeth, or the removal of a pulp, or filling a root, and the insertion of the simpler kinds of fillings. It may be for the fitting of an artificial crown, or its adjustment. I do not at this early hour begin a large contour filling; first, because it frequently happens that persons who have broken a tooth, or who have the toothache, are liable to come in early, and they need a little temporary attention. Secondly, if they do, you can arrest your early labors by having a chair in an adjacent room, and give the necessary moments which might not be possible were you intensely occupied. Another reason for engaging the first hour or so in the manner indicated, is that in cities it is frequently cloudy or dark so early in the morning, and of course that is a bar to the accomplishment of really fine operations. At nine-thirty A. M., or ten o'clock, the heavy work of the day begins; then the large fillings are started, and the difficult cavities are filled; or it may happen that I wish to fill three or four proximal cavities; operations that require extra good light. This usually requires one and a half to two and a half hours, the average being two hours. The next heavy work is then begun, which consumes the time up to one, or one-thirty P. M.; then lunch; after which perhaps another large filling, or very likely two; if the latter, the time up to four is consumed; if only one filling is made, I then have another appointment at three, for a simple filling or two, or three or four amalgam or tin fillings are inserted. Then I begin to change wedges, to attend to my regulating cases, to treat abscesses, cases of pyorrhœa, finish fillings previously made, and attend to the numerous miscellaneous cases that every dentist of full practice has to see, examine teeth, make temporary fillings, extract a root or tooth, give advice, or write a prescription. Then I charge the labors of the day and make credits for cash received, make out bills and write letters, etc.

This ends the day—in winter at five to five-thirty P. M., and in summer at five-thirty to six P. M. The time is too long, but how to shorten it and meet the demands of an increasing practice, try experiments, study and keep *au courant* with all that is going on in the dental world, take a peep at current medical literature, attend societies, read papers that one has written, deliver a course of lectures or two, assist in organizing new societies or colleges, take needed recreation, attend to social and home duties, and still earn enough to run the financial wheels and save something besides, is the question. Seriously, to view this matter in any light is discouraging. The only way in which and by which any practitioner with a conscience can long be successful and do justice to his patrons, is to raise his fees. What shall be the basis for fees? I take it that the demand for services in a legitimate practice, by the public, is made by it to the professional man on account of his supposed skill, honesty, and ability to treat successfully the ills which negligence, accident, misfortune or ignorance has made it to suffer.

If the dentist satisfies the public, his patrons, that he does his level best in every instance, they trust him, they flock around him, and overwhelm him with their patronage. The greater number of those who seek the services of a dentist are not the possessors of large incomes. If it were so, in a few years a dentist might retire with a competence. How many have retired in Chicago? People with growing families and the possessors of moderate means are the most constant in their visits to the dentist. Families of large wealth are found in many places of recent origin. Many of them are, from their previous surroundings or education, unable to discriminate between the skilled and the unskilled. They are restive and foolish in their unwillingness to bear with the necessary infliction of pain to treat or fill teeth properly. They are often unwise enough to offer to compensate for services of the most wearing and tedious nature in the spirit of dispensers of charity, or consider that they have done what was perfectly right in offering to pay half the bill for a receipt in full, and you are given the inestimable privilege at that cost of retaining them as your clients, or you are

invited to collect through the courts, which is usually a poor way of obtaining one's dues on account of the comparative smallness of the claim.

I think that in disposing of time the most valuable should be allotted to those who appreciate one's labors, and who are willing to compensate for them. If one undertakes a difficult and delicate operation for people not able to compensate in the fullest manner, we are bound to do for those persons the same as though the full compensation had been received.

My plan of allotting time is to parcel it out to patients as far as may be without too great inconvenience, so that the best hours of the day are devoted to the cases needing most care and skill, having some reference to the appreciation of the patient and his willingness to make proper compensation for the service rendered. If I were to estimate the value of time at so many dollars per hour, I should say that an hour from eight-thirty to nine-thirty is worth (according to the demand for time of the operator) about four to six dollars; from nine-thirty to one-thirty about five to eight dollars; from two to four P. M. about five to seven dollars; and four to five-thirty at three to six dollars per hour. I do not believe in the idea of receiving compensation by the hour, as it is unfair to patient and operator. Regular routine operations generally take up two-thirds of the time of every dentist. If he operates exclusively, he sees more patients daily than the one who spends one-fourth to one-half his time in the prosthetic department; the former, from habit, or application, or increasing dexterity, can make a larger number of operations daily than his brother who is not so constantly occupied. He learns from experience to manage his patients better, so as to expedite matters. He makes no false motions, everything is in readiness to work with, all his materials are at hand, his gold, or tin, or Robinson filling, his gutta-perchas and plastics are all ready to be used. While the operator without system or method is getting his patient seated and his implements ready, the methodical operator has adjusted the dam, prepared a cavity and filled it, received his fee, and is ready for the next patient. System, order, and celerity of motion tell in a long day.

If, on account of your method of managing a patient and the wisdom you acquire in repeatedly doing the same kind of operations, you are able to insert two fillings where your slower brother inserts but one, it is an injustice to you to be paid the same fee for the performance of double duty. I believe, also, that a habit of making rapid operations tends to a greater thoroughness in the vast majority of cases. There is no uncertainty about the how or where of cutting. The operator who wishes to accomplish much has sharp chisels and good excavators, and his burrs are not dull. He spends little time in changing engine bits, because the cavity is well opened before he uses a burr; it is saturated with the obtunder, no matter what, quickly dried, a spoon-shaped instrument is dexterously applied, and presto, the cavity is ready for filling. When a cavity difficult of access and more difficult to fill is met with, even though it be small, if it consumes his vitality rapidly, the operator should make his fee commensurate with the skill required for its successful accomplishment, rather than on the basis of size of cavity or time required for its filling. Skill and knowledge and judgment are the factors to be considered in formulating a tariff of fees, and not time, nor materials, nor a desire to charge so much per diem.

In concluding this paper I desire to say that a patient has some rights which every dentist ought to respect. I do not permit any interruption by callers for appointments, or chance visitors; the only case which comes to me from nine-thirty to four which I stop to see (as a rule), is one of actual suffering. I make it known to patients on my appointment card that they can come at four and take their turn any day, and usually they acquiesce in this arrangement. A practitioner in a large city may lose a few patients at first, but those who make appointments appreciate the fact that they are required to spend only about one-half or two-thirds the time which they might have spent had the dentist been talking to half a dozen persons during the preparation and filling of a cavity, requiring at the utmost one hour for its completion. Time, to a dentist who has labored to perfect himself in all the details of his practice, is valuable; and he stands in his own light when he

thoughtlessly or carelessly consumes it, to his own detriment and against his patients' interests, by endeavoring to make it up, as many are in the habit of doing, by improperly preparing cavities, impacting gold, finishing fillings poorly, or half doing many other important operations not necessary to enumerate, solely on account of a lack of system, method, or business-like habit of disposing of time.

TWO CASES IN PRACTICE.

BY J. L. WILLIAMS, NEW HAVEN, CONN.

Miss K. called for an examination and appointment. While examining the right upper first molar I discovered a fistulous opening in the roof of the mouth, at a point about opposite the end of the palatine root of the tooth. On calling her attention to it, she said that there had been a swelling at that point about a year previous, and it had left the little opening which I had discovered. My suspicions were at once directed towards a pulpless lateral on the same side of the jaw. But a careful examination of the tooth, and also the failure of the exploring probe to find an opening in that direction, led to further consideration. All of the third molars were in position, except on this side of the upper jaw. She was certain that no tooth had been extracted in this region. A more close examination of the crown of what I had at first regarded as the right upper second molar, and a comparison of this crown with that of the third molar on the opposite side, convinced me that it was the third molar for this side. The missing tooth, then, was the second molar. Evidently here was a case where it would be judicious to "make haste slowly." I inserted the point of a stout lance-blade in the fistulous opening, and made a clean cut through to the bone and down to the margin of the gum. I should have previously remarked that the first molar was free from decay, and gave evidence of having a healthy pulp. After making the incision I explored carefully with a needle point. In the vicinity of the fistulous opening I could feel what I at first supposed was the palatine root of the first molar. But as it seemed to be a little further

back than the normal position of this root would be, I determined to remove the external wall of bone from the opening down to the alveolar margin, which I did with a large rose burr. I could now trace the root down between the first and third molars, these teeth being in contact with each other. I could not understand why the second molar should have failed to erupt, or how the third molar could have pressed forward over it until it was in contact with the first molar. I packed cotton firmly into the incision, and dismissed the patient, to call the following morning.

On removing the cotton next morning I could see, by aid of the mouth mirror, the discolored root. I could also determine by the use of the needle-pointed explorer, that it had no connection with either of the other teeth. I then cut around it as well as I could by the use of fissure burrs, and passing the point of a curved elevator around it I loosened the mass, and with a slender-pointed forcep brought away—the palatine root of the second molar. Further exploration failed to detect any additional portion of the tooth. The most remarkable feature of the case was that the patient should have had no recollection of the decay of the crown and loss of the two buccal roots of the tooth. The expulsion of the roots was probably hastened by the eruption of the third molar, which pressed forward and imprisoned the palatine root. The opening healed rapidly, but has left quite a marked depression.

The case illustrates the importance of taking all the factors of a problem into consideration before attempting its solution.

Case 2. Mrs. S. had been wearing a pivot tooth on the root of the upper right central for several years, and as it required frequent resetting she desired to have it replaced by a more permanent operation. On removing the crown, the root was found in a bad condition. Decay had penetrated the side of the root, leaving quite a large opening into the pericementum. An enlarged foraminal opening led to a cavity at the end of the root, from which an offensive pus was discharged. But the root was very firm, and promised to give a secure foundation for a crown if it could be brought into a healthy condition. A little cowardice prompted me to attempt the treatment through the root, but after a week's effort my ambi-

tion in that direction was satisfied, and I resorted to a method which has proved eminently successful in several cases of this character. The end of a soft, smooth broach was bent so as to form a little hook. This was passed up the enlarged pulp canal until the hook slipped over the end of the root. The broach was then seized with pliers at a point exactly opposite the external end of the root and drawn out, and the length carefully measured.

A point of orange wood was carefully shaped to fit the pulp canal, a notch cut on one side, showing the exact length of the root inside, and after dipping in a solution composed of equal parts of carbolic acid, chloral hydrate and gum camphor, it was driven into the canal until the notch appeared precisely opposite the end of the root. I know of no other method by which an enlarged pulp canal can be so perfectly filled, with a certainty that the filling material has gone exactly to the end of the root and no further.

The wood point was twisted off at a point about half the length of the root, where it had been weakened by passing a knife around it, cutting partly through. Heavy gold foil was placed over the opening in the side of the root, and the large funnel-shaped opening filled with amalgam. An external opening was made opposite the end of the root, and the diseased bone and end of the root cut away with rose burrs. A cotton tent was kept in for two days. On the third day a crown was placed on the root, and in ten days the external opening healed, and all irritation had passed away.

EXPERIMENTS AND LOGIC.

BY CHARLES MAYR, A. M., SPRINGFIELD, MASS.

The article of Dr. Miller in the December *INDEPENDENT PRACTITIONER* seems to me to illustrate very forcibly that a great experimenter is not necessarily a good logician, and that the one may be entirely separate from the other. There is probably none among us who is not forced to accept Dr. Miller as an experimenter of the first rank, but this does not protect him from having his logic and his de-

ductions submitted to our criticisms. We even admit without questioning the results of his experiments, but we take strong exception to his logic. Dr. Miller is wrong in supposing that only the man who makes the original experiments is the one who is able to write the theory upon it. We should prefer, as far as theories are concerned, to have an impartial student sum up the results of the experiments. Most investigators in a special line of investigation are wont to consider their line as of paramount importance, and to lose sight of points gained in other directions. We thus have the dental chemists, like Dr. Niles, advocating mostly chemical views, Dr. Atkinson and other physicians preferring pathological views, etc. I do not wish to say that these gentlemen do not take into consideration other views, only their natural training tends to cause them to give preference to their special line of investigation over all others. We are all familiar with the story that the excellent astronomer, Copernicus, never in his life saw the planet Mercury, and yet his theory about the planet is perfectly correct. Thus, Keppler never measured any astronomical distances, but used those of Tycho de Brahe, and based upon them his theory, which is now fully endorsed; while the views of Tycho de Brahe, from whom Keppler got his facts, only excite ridicule in our days. Tycho de Brahe was one of those proud investigators who, in well earned fame, looked down upon the speculative vermin with contempt, but the speculative bugs ate up the grand astronomer.

I do not think that Dr. Miller is very clear in his definitions of fermentation and putrefaction. I never yet saw a clear statement from him of what *he* meant by that, and it is impossible to dispute with a man, with practically useful results, before one knows what he means by certain words. I have repeatedly pronounced a most concise definition of these terms, and I think all chemical factors are in favor of this definition. Dr. Miller will have to supplant it with something better before he will meet with general acceptance. If ptyaline is a ferment, than platinum is one too. Dr. Miller, in his article of December, said: We give an abridged statement. "If a man receives a stab in the abdomen and dies, we do not say

he died of peritonitis, but from the stab." That is what I call defective logic. To go into the fine details of this point would lead us into a discussion on logic, but I would only point out this: Dr. Miller knows, as well as most other dentists, that many people recover from a *stab* in the abdomen, if the peritonitis which sets in is slight; nay, where with proper treatment peritonitis is prevented, a person as good as never dies from the stab; so to call the stab the cause of the death, and to consider the peritonitis something irrelevant, is illogical.* If we speak of causes, we only speak of *direct* antecedents and consequents; the direct antecedent of the death was peritonitis, and in all logic this has to be called the direct cause of his death. The other indirect causes are of an immense number. Indirectly, we can say, it is the knife that killed the man. If no stabbing implement had been invented, the man would not have died; or, it is the hand of the criminal who wielded the knife—if people were born without hands he could not have stabbed his victim, etc., with grace *ad infinitum*. Thus, as soon as we go to indirect causes and confound them with direct ones, our reasoning becomes defective. Dr. Miller's reasoning applied to the tooth appears equally faulty. Dr. Miller thinks that the mechanical injury, the softening of the dentine by acids generated by fermentation, is decay—analogous to the stab in his strange argument. Now, when we eat vinegar, the vinegar dissolves a small amount of the tooth substance, and we would have decay all over our teeth according to Dr. Miller. This, no dentist will acknowledge as the decay under discussion. The decay under consideration is so specific that the mere action of acids is not sufficient to produce it.

But it would exceed the space of this paper to criticise more in this direction. Good reasoning may sometimes appear to travel faster than experiments, but this does not prove that the former is wrong; all it may prove is that the best experimenters are slow.

* To take *popular* expressions as scientific conclusive evidence, belongs to "*Yedes Kind weiss das*" logic, which needs no condemnation.

Reports of Society Meetings.

MISSISSIPPI VALLEY DENTAL ASSOCIATION.

FORTIETH ANNUAL MEETING, HELD AT CINCINNATI, MARCH
5TH AND 6TH, 1884.

PHONOGRAPHICALLY REPORTED FOR THE INDEPENDENT PRACTITIONER.

BY F. W. SAGE, D. D. S.

Wednesday Morning, March 5th.

After organizing, a paper, illustrated by blackboard drawings, was read by Dr. G. W. Smith ; Subject, "Treating Nerve Canals of Dead Teeth." This was supplemented by remarks by the author on mounting porcelain crowns, in which he dwelt on the beauty and utility of gold bands and backings as a support for the crown, and urged the importance of devoting ample time to each case, in order to secure a perfect result. Dr. W. S. How followed with an illustrated description of his method of mounting crowns. Dr. H. A. Smith remarked, later, that in certain cases where the roots were broken or decayed considerably below the gum line and presented a bell-shaped opening, he had found difficulty in securing a proper alignment of the platinum screw-post with the porcelain crown. In these cases he departed from the detailed instructions of Dr. How, and overcame the difficulty by attaching the post with cement to the crown, and then forcing both to their final position at once, then removing the cement and proceeding as per instructions. He liked this method of Dr. How, because he had found by experience that it enabled the operator to proceed by clearly-defined steps to a final result, satisfactory to himself and his patient. It is of vital importance, he has found, that the concavity on the end of the prepared root be made rather deep, so as to prevent any rotation of the artificial crown. The time required for the operation, after having the root prepared, is from one to two hours.

Dr. F. A. Hunter—For many years I have made a general practice of mounting teeth on roots, employing various methods from time to time. I consider Dr. How's method the most feasible, and the best that has hitherto been brought to my notice. I have mounted perhaps ten or a dozen of his crowns within a year, and I consider the system very complete, because you have things under such perfect control. In the case of bicuspid, a porcelain face can be put on stronger and better than by any other method, to my knowledge and in my judgment. It has proven very satisfactory in my hands. Dr. Smith has directed attention to the great importance of hollowing out the root for the reception of the porcelain crown, to a sufficient depth to insure the latter's not turning on its axis. [This refers to the concavity conforming to the festoon of the gum.—Rep.] That is of indispensable importance to the stability of the crown, and should not be overlooked.

Dr. J. Taft—I have never tried Dr. How's method of mounting crowns. It is similar to many other methods in that if all the steps are well taken, good results may be obtained. It has perhaps more advantages than some others. One of these is the facility of adapting the crown and then securing alignments. Many operators are in too great haste to accomplish the best results. Take such a case as the one in the diagram before you. [A lateral root, decayed a line or more below the border of the gum.—Rep.] We find, in attempting such an operation, that there are difficulties we did not suspect. Dr. How has, no doubt, a great many little turns and resources which would not at once occur to a novice. Although the operations might be performed under his very eyes, by Dr. How, many little details would probably escape his notice. He would need to improvise and work out other details, in addition to all he had learned from close observation, before he would be possessed of that peculiar facility which would enable him to proceed uninterruptedly to the achievement of a successful result. In regard to instances of very badly decayed roots, perhaps much is attempted which would better not be attempted at all. Where there is a marked predisposition to inflammation, I should hesitate to make any more than a merely experimental operation. Take a person whose health is good,

who is well nourished, and you can do almost anything in the way of operations which in the case of another would be wholly undesirable. You could almost put a pivot into the socket of an extracted root in one case; in another, you might well hesitate to even probe the pulp canal. We should select our cases in accordance with the indications of diathesis. Where there is manifestly diseased condition of the gum, in many cases, the contact of a filling material above the gum line, as in the case in the diagram, would not be tolerated. At all events, where amalgam or any other plastic is used about the ends of the roots above the gingival border, great care should be taken to finish it smoothly and flush with the margin of the root. It is important to have the gum in a healthy condition; where there is tumefaction or hypertrophy, the operation should not be attempted at all.

Dr. H. A. Smith—I approve of all that Dr. Taft has said. In what I said about the difficulty of attaching the crown to those badly decayed roots, I had particularly in view the mechanical aspect of the case, and expressed no opinion as to the advisability of attempting the operation, regarding the case from a pathological standpoint.

Dr. How—Of course there are limits to all apparent possibilities. In actual practice, no doubt, efforts are often misdirected to the salvation of roots which ought to be extracted.

Dr. G. W. Smith—Dr. How's method of mounting crowns is certainly deserving of high praise, even granting that it does not render all the hitherto impossible cases possible.

Dr. Sillito—I have set a number of crowns by Dr. How's method, and am pleased with the results I have been enabled to attain. In one instance, where I failed in my endeavors to mount a crown by other well-known means, by resorting to this method I succeeded in fixing on a crown which has now done good service for eight months.

Dr. Jennings (sotto voce)—It will be delivered next month. (Laughter.)

Dr. J. Taft—Dr. How recommends pressing back the gum with cotton and sandarac varnish, as is often done in other operations,

in order to fairly expose the end of the root. I presume that he continues the process of expansion until he has secured sufficient space to admit of finishing the plastic filling above the gum line. Now that needs to be done carefully, so as not to excite inflammation. By prolonged pressure you are liable to induce a condition not easy to control. It is commonly expected that only those who have full knowledge of all these things should do the talking. I should like to hear from some who do *not* know.

Dr. C. M. Wright, Chairman—Shall the chair call out some who do not know?

Dr. Taft—Yes, if you please.

Dr. Wright—Dr. Cassidy, will you please expose your ignorance? (Laughter.)

Dr. Cassidy—I know *too* much. (Renewed laughter).

Dr. J. Taft—Dr. Corydon Palmer carved out and attached a crown of walrus tusk to supply the loss of a molar crown in his own mouth. It was attached with screws so skillfully as almost to defy detection. That was many years ago.

Dr. Berry—I have always been afraid of trouble when setting crowns on diseased roots, and yet I have frequently done it. I always tell the patient beforehand that he may have trouble. When I undertake such operations I want some assurance of my patient's confidence in my integrity, so that in case of failure I will not be unreasonably blamed.

Calls for Dr. Jennings, who failed to respond.

Dr. Frank Hunter—I consider it a marked breach of etiquette, not to say an outrage, that a man should come down here from Northern Ohio and sit in this assembly, absorb all that is said, and never open his mouth. Can't somebody make him get up? (Laughter.)

Dr. Jennings—I am paying my way and I want my money's worth, first. (Laughter.)

Dr. Sage—I have not yet tried Dr. How's crowns, although I have several times thought I would do so. Have had a difficulty (of which I have heard others complain) in using amalgam about the Bonwill pins in roots, in that the mercury amalgamates with the pin, and the latter soon breaks. The method described in Richardson's *Mechani-*

cal Dentistry, credited to Dr. Edwin T. Darby, is, though nothing new, an excellent one (when properly performed) for all front teeth. It consists of a strong platinum wire, fitted into the root, over this a thin cap of platinum, covering the end of the root accurately, a plain plate tooth backed with platinum, and finally soldered to the pin and the platinum cap with pure foil scraps. The appliance admits of proper alignment, is more cleanly than a wooden-pivoted crown, much more accurate in adaptation, and much stronger. A large wire should be used, or there will be danger of its bending. A smaller wire of stiffened gold may be used, but more care will be required in soldering. The various steps of the operation are easily understood and mastered, and with ordinary care no uncertainty attends the final result. When you have finished the appliance and place it in the mouth, you find that it fits exactly. It may be reset, usually in a few moments. The peculiar advantage of this method is that if there be any failure it is usually simply a failure of attachment of the pin in the root, which is easily remedied. The appliance is usually found unimpaired, and all that is required is ten or fifteen minutes for resetting. This seldom occurs before the lapse of from three to five years. I use a rather large platinum post (made to order) in the root, and it never bends. At present, the advantage of having a wide range for selection from either plain, plate or rubber teeth, gives this method the preference over some others. The method is not quite perfection, but what other method of mounting crowns is free from all objection?

Dr. Van Antwerp—Spoke of the importance of a deep concavity in preparing a root for a How's crown.

The subject under consideration being passed, the Chairman, Dr. Wright, read a paper, entitled "Phosphate of Lime and the Teeth."

Dr. A. O. Rawls—The administration of complementary food is not generally well understood. The elements contained in natural food are supplied directly to the organs and tissues, in a degree more or less discernible. It is not sufficient that the food appropriate for the nourishment of tissues be merely supplied; to accomplish the desired object assimilation of such food is requisite. We know that complementary food administered to a pregnant woman will, under

favorable circumstances, benefit her and the child as well, but how many women will you find who are willing to submit to the conditions favorable for the accomplishment of the results desired? Exercise is the great requisite, and indeed it would seem to be all-sufficient to insure health in the child; certainly without it the mere administration of complementary food will hardly avail to improve matters. Tonics administered to increase the neural circulation, or the blood circulation, will accomplish nothing without exercise. Among the children of the better classes, those who are carefully kept in-doors and at school, you will find not so much evidence of a deficiency of lime-salts in the blood, but the frail character of their teeth must be attributed to a lack of free out-of-door exercise; in short, to defective nutrition. They perhaps subsist on delicate viands, pulpy food, and their teeth suffer for lack of the exercise which nature designed them to have. Use one side of the mouth exclusively in masticating, and in time the opposite teeth will suffer from the neglect of exercise. The complementary foods in the shape of medicines have their place, but I apprehend that they are not unfrequently prescribed for patients, when a prescription calling for plenty of light, air and exercise would be more suitable.

Dr. H. A. Smith—There are many crude experiments made in the use of phosphate. Man is peculiarly constituted, physically, in that he is omniverous. Certain races subsist on meat entirely, others on fish, others again on vegetables and fruits. Which of all these classes has the best teeth? Is it the Icelfander or the Greenlander, whose diet is almost exclusively meat; or is it the macaroni-eating Italian, or the rice-eating Chinaman, or the English or American, whose diet is various? I was interested, some time since, in certain observations and comparisons made by an eminent English agriculturist and scientist. He states that the English wheat-grain, which is larger and plumper than the American wheat-kernel, contains a larger per cent of albuminoids. The tabular statement is to the effect that the English grain contains 13 per cent of albuminoid, or starchy substance, the American grain, 11.95 per cent, and the wheat of the Pacific Coast, 8 or 10 per cent only. Now it is the starchy food which he claims is the most valuable. We on this side

of the water have generally held the belief that the outer shell which contains the gluten or albumen is the most nutritious part of the grain.—Dr. Smith showed the hexagonal structure of the internal portion of the grain, also the arrangement of the several layers composing the shell, by illustrations. There are six layers. These contain the phosphates. Taking into consideration the contrasts which are discovered by an examination of the nature of foods upon which the races appear to thrive the world over, the question, what food is best adapted to promote the development and strength of osseous structures, would seem to be involved in much that is obscure and perplexing. He surmises that in the instance of a pregnant woman, the nutritive process by which the foetal structure is developed is analogous to the development of the chick in the shell. The inner layers of the shell are appropriated by the developing embryo, so that the shell, becoming more and more thinned, admits finally of the release of the inmate at the proper time. So in all probability the child draws on the mother for bone-making material. Dr. Smith cited the case of his own children. Three, who always ate bread made from bolted flour, have good teeth, while the teeth of the fourth, who early exhibited a decided preference for brown bread, are the poorest of all. It is worthy of note that while the urine of the adult often contains phosphates, that of the child contains none.

Dr. G. W. Smith—What do you think of milk?

Dr. H. A. Smith—Give the child all the milk it wants. Milk contains a larger amount of the phosphates than meat or the cereals.

Dr. G. W. Smith—Knew a child seven years old who had “never eaten anything but milk,” and whose teeth were excellent.

Dr. Van Antwerp—Dr. Johnson, the author of the dictionary, remarked that in England oats were used to feed horses, and in Scotland to feed men. Some one replied that that accounts for the excellence of the horses in England and of the men in Scotland. The Scotch, in the Highlands, have good teeth. In Glasgow they have bad teeth—no better than the Londoners. Air and exercise no doubt have much to do with this.

Dr. H. A. Smith—An observer states that he saw many bandy-legged children in the region of Glasgow. A similar fact was

noticed about Iceland. The lime-salts in the water used are probably scanty.

Dr. C. M. Wright, Chairman—Dr. Cushing, of Chicago, made the remark that he believes from his clinical observations that the exhibition of the lime-salts would sometimes assist a woman in pregnancy when the natural food would not assimilate.

Dr. Sage—It has been shown that at the very time the foetus was supposed to be appropriating more than its share of the lime-salts from the mother, a free elimination of the salts from the system was going on. In this condition of the mother's system would the exhibition of artificially prepared lime-salts be indicated? Much diversity of opinion as to the efficacy of this artificial means for repairing the waste, prevails among scientists in the medical faculty.

Dr. Osmond—It was formerly, and is still the practice with many, to administer the hypophosphites in uninterrupted doses to pregnant woman. That is a mistake. I administer the medicine for two weeks, and then allow a lapse of two weeks. At the end of the fortnight some nausea may be noticed. I have again and again seen the hypophosphites administered to pregnant woman whose teeth were poor, with the result of securing for the child a good set of teeth in after years. As to the effects of lime-water, at a certain watering place I visited in England, in 1880, the teeth of those living in the vicinity were very poor. The bicarbonate of lime in the springs readily induced petrification upon articles placed in them, and yet the teeth of the dwellers there soften rapidly. What are we to infer from that?

The principal constituent of our teeth is the phosphate of lime. Generally speaking, it is certain that in some regions where the water is very hard, teeth are very bad. In other regions, where the hardness of the water is not produced by bicarbonate of lime, there is plaster-of-paris formation, which is less noxious. The sulphate of lime has a different effect upon the teeth from that produced by the carbonate of lime.

THURSDAY MORNING SESSION.

The subject announced for discussion was: "What means are best adapted for maintaining the teeth and mouth in a healthy condition?"

Dr. Taft—Opened the discussion of the subject by calling attention to the duty of the dentist to instruct the patient about the care of his teeth. The dentist should not shrink from the performance of disagreeable work. In all professions there is the scavenger's work to be done.

Dr. Osmond—Has discovered that many who use the brush use it in the morning only. He always begins his course of treatment by attention to the removal of tartar, etc., and often waits a day or two before further operations. Recommends the use of tooth-powder at night particularly. Water alone may be used in the morning.

Dr. H. A. Smith—Recommends the use of Listerine as a mouth-wash. He spoke of the early discovery of bacteria in the mouth. On September 14th, 1683, Antony Van Leeuwenhoek, of the Netherlands, gave notice to the Royal Society of Great Britain that he had seen with the microscope little animals moving in a lively manner in the white substance scraped from his teeth—the first bacteria ever seen with the human eye. He described several varieties, easily recognized as *Bacillæ*, *Bacterium*, *Leptothrix Buccalis*, etc. He wonders, since he cleans his teeth, how so many creatures manage to live in his mouth! He found after drinking hot coffee that they had disappeared. After awhile they reappeared. In 1692 he made accurate drawings of these various animalculæ (fungi), which to this day have not been surpassed. He (the speaker) doubts whether the presence of these parasites in the mouth is of important significance.

Dr. Berry—A celebrated microscopist told me he had discovered bacteria in a drop of his own saliva. His mouth was in a very unhealthy condition. Conjoined suppuration of the alveolus and the gums, as the old writers called it, was noticeable. He lost several of his teeth finally.

Dr. G. W. Smith—Bacteria are not peculiar to a diseased condition of the mouth; they are found in perfectly healthy mouths. Whenever accumulations are found about the teeth bacteria may be

discovered in abundance. They are not always destructive. But if the mouth is neglected, they may be very destructive.

Dr. Jay—I have more than once sent patients home to brush their teeth and clean their mouths before I would operate for them. Too often the dentist's reputation is made to suffer when the real blame lies with the negligent patient. Too many of our patients fail to attend to our injunctions.

Dr. Osmond—By way of a gentle hint I have sometimes suggested to a patient the advisability of getting weighed before having tartar removed. After having had the tartar removed and the gums treated, I recommend the use of a rather soft brush. To avoid injury to the tender gums I advise a brush with the outer rows of bristles cut away. An unbleached Russia bristle brush is best. It will outlast half-a-dozen bleached bristle brushes. The bristles of these brushes are wired in, and are consequently more durable. I obtained a lot of these unbleached bristle brushes from a London firm, but there is now an American firm manufacturing the same brush.

Dr. Taft—Of all the antiseptic mouth-washes there is perhaps nothing better than Listerine. I have used it for about a year.

Dr. Jay—How do you use it?

Dr. Taft—Like other washes, upon the brush. It is especially useful as a wash, to be used before retiring. Those who sleep with the mouth closed have, perhaps, less need of a brush than many others. At all events their teeth will decay less rapidly. At night the watery portions of the saliva are thrown out, and the mucus becomes agglutinated, and injury to the teeth results. The presence of bacteria in the oral cavity is, perhaps, of little importance; still, as an essential of cleanliness their removal is desirable, and this may be accomplished by using Listerine. I do not, however, regard them as a prime factor in decay.

Dr. Osmond—I do not regard bacteria as worthy of any very particular consideration. Parasites abound in all parts of the system.

Large fleas had little fleas,
And those have fleas to bite 'em,
And there are fleas to feed on these,
And so, *ad infinitum*.

(TO BE CONTINUED.)

ODONTOLOGICAL SOCIETY OF NEW YORK.

The New York Odontological Society met Tuesday evening, February 19th, at the residence of Dr. W. E. Hoag.

Dr. N. W. Kingsley—Exhibited artificial teeth mounted on a metallic base, composed of sixteen parts of pure tin with one part of bismuth. This compound flows at a temperature of less than four hundred degrees, and in a molten state is poured into a matrix composed of sea-sand and plaster, in which the teeth as arranged are imbedded. The specimens were exceedingly beautiful, and show a decided advance in the production of artificial dentures. Dr. K. stated that they could be easily repaired, and where plain teeth were required the gum could be formed of pink vulcanite. He also asserted that the material would retain its color and brilliancy better even than gold.

Dr. J. Morgan Howe—Read a paper on Iodoform, wherein he referred to his success in the use of this remedial agent in cases of alveolar abscess. He recommends a solution of iodoform in equal parts of sulphuric ether and alcohol.

The essayist for the evening was *Prof. Thos. Fillebrown*, of Boston, who read a paper on the advantages of gold foil as a filling material; he also gave his particular method of manipulating it. He recommends number four cohesive foil, which he cuts into strips of various widths and converts into coils. These he warms over a spirit lamp, avoiding red heat, and carries each required coil to the cavity, carefully packing and lapping fold after fold with a gentle pressure, which might be described as semi-rotary, at the same time rubbing the foil against the cavity walls.

This method, he claims, will bring the layers of gold together so admirably that perfect cohesion is secured. Prof. F. exhibited instruments which he employs in carrying out his method of manipulating or rubbing the coils of foil into tooth cavities, the "points," or packing surfaces of which, were slightly rounded to get rid of sharp edges, and with exceedingly fine serrations to prevent slipping.*

* This principle of packing is somewhat similar to that suggested some years ago by Dr. Shumway, of Massachusetts, and later by Dr. Chance, of Oregon; the former, however, condensing with ivory, and the latter with gold points.

Prof. F. dilated largely upon the nice cohesive properties of gold foil, its soft plastic nature, etc., but emphatically condemned the practice of punching, wedging or malleting gold into a cavity, which, he says, beats out and destroys the best properties it possesses. He considers gold foil preferable to all other stoppings, both as to appearance and durability.

Dr. A. H. Brockway—Stated that he believed many cases occurred where plastic stoppings answered a most excellent purpose. He also spoke of the success he had experienced in the use of “prepared” or “sponge” gold, and wondered why it was not in more common use by dentists.

Dr. J. B. Rich—Favored the use of cohesive foil, preferring number four, but could see no sense in rolling it into coils. He claimed that, in order to pack it perfectly, it should be folded into ribbons, thus permitting the flattened layers to cohere compactly together, making good solid fillings.

Dr. E. A. Bogue—Mildly intimated that, although gold fillings might be desirable, cases were very common where individuals, anxious to save their teeth, were unable to indulge in such expensive luxuries as gold fillings, and that their needs should be considered. Dr. B. contended that much excellent work had been done with non-cohesive foil, and hand-pressure instruments. Many old-fashioned cylinder fillings had done, and were still doing, good service. He also instanced an interview with a manufacturer of gold foil, who asserted that varying degrees of cohesion could be imparted to portions cut from a single bar of gold, by remelting each portion with different substances used as flux.

Correspondence.

101 SOUTH OXFORD ST.,
BROOKLYN, N. Y., March 10, 1884.

Editor Independent Practitioner:

Recognizing the rapidity and accuracy with which the dental engine replaces all similar operations by hand, I have always been

an outspoken advocate in its behalf. Since the introduction of the Elliott suspension engine, I have had one in continuous operation, and until recently it has given perfect satisfaction. Modern and improved hand-pieces, together with the worn-out condition of my engine, led me to investigate and to consider the best way to supply myself with good and efficient means.

Having used the suspension action so long, I was unwilling to entirely part with it, and yet I was not ignorant of its faults, nor so prejudiced in its favor that I could not discern the merits of other and different manufactures.

The position of my operating chair is against a party-wall, on the left hand side; the ceiling is twelve feet high, thus being favorable for my modification, and disadvantageous for the suspension. Against the party-wall, on a line with the chair's head-rest, and six feet from the floor, I fastened a wall plate, and upon that attached a piece of bronze gas-pipe twenty inches long and three-quarters of an inch in diameter, bringing the outer end directly over my chair. To this is attached a second pipe, of smaller diameter and same length, by a swivel joint. At this juncture a couple of pulley wheels are attached, the small brass rod on which they run being screwed into the joint. At the outer extremity of the second piece of pipe, running into the bore and fastened in by a set-screw, is the cable part of the S. S. White Improved Dental Engine. For the motor power I use the Johnston suspension. The driving cord runs over the two pulley wheels, along the second piece of pipe to the end, and over the set-wheel of the flexible cable.

In this modification I have the running power and firmness of the standard engine, and the "out-of-the-wayness" of the suspension.

Thinking that others may possibly find the suggestion of some value, I send it to you for their benefit.

Very truly yours,

F. W. DOLBEARE.

NO. 15 WEST 20TH ST.,
NEW YORK, March 15, 1884.

Editor Independent Practitioner:

Dentists have often complained of popular ignorance concerning the teeth, and have taken pains to educate the public. But I discovered the other day that the schoolmaster is abroad with all the modern improvements, and we may presently be going to school to our patients. It was in this wise: An uncommonly bright school girl of twelve or fourteen years, having just left my chair, looked into my face with her eyes full of a sweet seriousness and asked, "Doctor, have I such teeth as bacteria readily devour?" And certain symptoms of amusement on my part were not received with favor.

Very truly yours,

J. SMITH DODGE, D. D. S.

ROCHESTER, N. Y., March 21, 1884.

Editor Independent Practitioner:

I find on page 152, of your March number, what purports to be a report of my remarks at the late union meeting of the Seventh and Eighth District Dental Societies, wherein I am made to say of the National Board of Examiners, "there are good men in it, and there are bad men in it," etc. I said nothing of the kind; but if your readers will substitute "Association" for "Board," make "good" to mean the fair-play element of the association, and "bad" that element whose motives are open to question, or whose knowledge of New York's affairs is nothing more than garnished ignorance, I will let it stand as published, without further request for change.

Respectfully,

J. EDW. LINE.

Editorial.

DENTAL EDUCATION AGAIN.

This cannot be called a hackneyed subject, notwithstanding so much has been said and written upon it, for its importance warrants almost any amount of intelligent discussion. Dentistry is

yet in a comparatively formative state, and it behooves all who love their profession to thoughtfully consider what its best interests demand. In England professional education has not even yet been reduced to a system, and the tendency there seems toward a divergence from that in existence here. America took the lead in the establishment of dental schools, but their character was largely determined by the then existing circumstances. When Harris proposed to establish chairs of dental professorship in medical colleges, he was met with a cold rebuff, and this was the reason for the organization of distinct dental colleges. The far-seeing men of that day recognized the possibilities that lay in the future of dentistry. A professional education was an imperative necessity, and if it could not be obtained in existing colleges, there was no way but to establish new ones. The rapid strides that dentistry was making, and the high scientific and professional ground that its best exemplars took, at last opened the eyes of medical men, and of late years the best of the medical schools have thrown wide their doors, and afforded facilities for the proper study of dental science. These have now so multiplied that, with the segregated dental schools, there has arisen a sharp competition for students, which instead of raising has lowered the educational standard. The whole matter rests upon a purely business foundation, and is quite beyond the control of professional ethics. Dental college authorities are responsible to no one, and practically graduate whom they please. When this power rests in the hands of high-minded men, those who have some regard for the ethics of professional life, it can work no harm. But with the multiplication of schools, the ambition of unqualified or unprincipled men to obtain a position, either for the supposed honor that it may bring them or the money which they hope to obtain from it, our schools are in danger of becoming mere diploma mills. Indeed, some of them are little more than that now. It is time that the profession left off the bickerings over mere matters of detail, such as have usually been discussed in our societies under the head of "Dental Education," and begin seriously to consider the general subject of an educational *system*.

Editorial.

In an editorial article in the number of the INDEPENDENT PRACTITIONER for December, 1883, we detailed some of the abuses of the present lack of system, and the editor of *The Southern Dental Journal* takes us to task for not openly naming the guilty college. The time is not yet ripe for individual attacks. Sufficient testimony has not yet been collected, nor is the profession yet fully awake to the evils that will surely flow from some of the practices alluded to. The naming of one college that was graduating unworthy or unqualified students would only arouse personal feeling, and bring the accusation of a desire to compass unworthy and ulterior objects. Besides, as has been done before, it would be asserted that the accused college was only doing that of which other institutions were guilty. But the time will come when, with abundant proof to substantiate them, these charges can be brought home with a force that cannot be resisted or evaded.

It is not long since a regularly chartered college in Wisconsin publicly offered its diplomas for sale to any one who chose to invest an insignificant sum. How was this announcement met by the profession? Surely, one would imagine that such a storm of indignation would be raised among those who had a particle of professional pride, that all dentistry would be in a tumultuous uproar. It scarcely made a ripple upon the surface. A few weak protests were made, seemingly for form's sake, but the disgraceful business was allowed to flourish, practically unmolested. The men engaged in the dirty traffic were simply doing openly what some other schools had done under cover of a form. They granted diplomas without an examination. Others had done the same thing after an examination that was but a burlesque.

Fraudulent colleges can no longer do any special harm in the State of New York, as in some other States, because the law gives to the State Society the power to stamp them as unworthy by refusing to extend recognition to them, in which case their diplomas are not only worthless, but are testimony against the practitioner who uses them. But what shall be done to the recognized colleges that graduate unqualified students? They are too well skilled in artifice to be readily caught. Ingenious methods

have been devised whereby the ethical law may be kept in the letter, while violated in spirit. Within the past month a "student" made us a visit, and unwittingly revealed one of these tricks. He is matriculated at a dental college, but has never yet visited it. Constructively he is now supposed to be attending lectures, while he has never even been in the city in which the college is located. Next winter he expects to attend the last half of the term *as a second-course student*, and in the spring of '85 to graduate with all the honors attendant upon an extended term of study. Where is this thing to end if the competition among the colleges continues? What honor will there be in the possession of the D. D. S. if this prostitution of college authority be not checked? Already England looks with so much of suspicion upon our distinctive degree that the diplomas of but two of our universities are acknowledged there, and the special degree of Doctor of Dental Surgery is scarce a mark of distinction. It is idle to talk of obtaining the forfeiture of charters by legal process. Shrewd men will still keep on the windy side of the law, and the abrogation of a charter is more easily talked of than accomplished, as the medical profession learned in fighting the Buchanan schools.

The evils, present and prospective, of our want of educational system arise, to our apprehension, from the lack of responsibility on the part of the colleges. In the State of New York the literary schools and colleges are amenable to a Board of Regents, and this secures some kind of uniformity and regularity. The medical schools are practically unhampered, and the profession is becoming aroused to the necessity of placing some kind of check upon the wholesale graduation of uneducated boys. A bill has been offered in the legislature, providing for a State Board of Examiners, who alone shall have authority to grant diplomas in medicine. Of course it is opposed by many of the colleges, and another emasculated bill has been offered, presumably in their interests. But it is confidently expected that the Erie County Bill, as the original is termed, because of its having its origin in Buffalo, Erie County, will in the near future become a law. Other States have already secured such

an one. In Illinois, Missouri, and other States, such a law seems to be working good to medicine.

But that profession labors under embarrassments that would be unknown to dentistry, because of the different and warring schools into which medicine is divided. Allopath, Homeopath and Eclectic could scarcely be expected to agree in anything, yet it is not claimed in the States already in possession of a State Board for the licensing of physicians that injustice is done to either.

Why should not dental colleges be made amenable to such a law? There is something monstrous in the idea of any man or set of men being allowed to license their own pupils. They cannot, from the very nature of things, be dispassionate and unprejudiced judges of the qualifications of those whom they themselves profess to have fitted for their vocation. The power should rest somewhere else than in the hands of the professors of the schools. Competent men should be appointed by State authority to examine candidates for graduation, and to establish a uniform system; to set up an unvarying standard of qualification to which every student must attain before he can become possessed of a diploma, or a license to practice. When this is done there will be a stimulus to the acquisition of knowledge, and the pupil who simply goes to college to put in the requisite time may be distinguished from him who makes the most of the advantages which a college course presents. With such a Board, the time passed in college will be a matter of secondary consideration, and diplomas may be consistently granted to the possessor of the necessary knowledge, no matter where he may have obtained it. Such a Board will have no pecuniary interest in the graduation of students, and hence there will be no temptation to launch upon a suffering community a horde of unqualified pretenders to professional knowledge.

At present, the time standard is the only one the profession can depend upon. We can insist that no pupil shall be graduated who has not passed through a prescribed curriculum, and this, if it be not evaded, secures a certain amount of opportunity for study, although it is a very uncertain criterion by which to judge of the actual attainments of a student. Certain colleges have clamored

for the destruction of even this feeble barrier to the indiscriminate granting of diplomas, but any thinking man will readily appreciate the abuses that would inevitably creep in, were every honest or dishonest professor in a dental college free to graduate whom he would, himself the only judge of the qualifications necessary. Too often, it might be, the standard erected would be the ability to pay the liberal fee exacted. We commend this subject to the consideration of thoughtful men.

COMMENDATORY.

The readers of this journal have the right to know in what estimation it is held by some of those best qualified to judge of its merits. We therefore quote the following from the *Journal of the British Dental Association*:

“ Last year saw several minor and two notable additions to the already tolerably long list of dental periodical literature. The INDEPENDENT PRACTITIONER, which had been carried on for three years in the States as a medical journal, with a strong flavor of homeopathy and a little dentistry, finding by experience ‘that a journal must have a definite aim, and can satisfactorily serve but one class of readers,’ started on a new career, and under energetic editorship * * * has at once taken up a position in the front rank of dental journals. The other important addition is the *Centralblatt fuer Zahnheilkunde*, published in Berlin, and edited by Dr. Golstein, of Geneva.”

Although the editor is specially mentioned, those who are acquainted with inside facts know that the success of our enterprise is due more to the energy and ability of its managers, than to the one who stands as the exponent of his associates. They are content to perform unheralded labors for the sake of the profession that they love, while one whom they have pushed forward into the light sometimes receives the credit that is rightfully their due. There is an immense deal of good and hard work done for this journal, aside from its editor's labors.

SUGGESTIVE.

Many good friends of this journal have written complimentary letters to the editor and publishers. Some have announced a

readiness to help us pecuniarily if it were needed. They think the *I. P.* has a mission, and should be sustained, and they are willing to liberally contribute for this purpose. We deeply appreciate all these kind words, and may we not deferentially hint to such that there is a way in which they can assist us, and at the same time perform an act of kindness to their neighbors. It is by soliciting subscriptions. If every friend of the *I. P.* would secure one new subscriber, he would practically exhibit his sympathy, and enable us to make it more nearly our ideal of what a dental journal should be. Remember that every dollar paid to it goes into the journal.

NAUSEA.

Dr. F. Douglas, of Fenton, Mich., says: "For many years I have known that a few drops of cold water thrown in the face would instantly remove nausea, at least for a short time. Many times I have used the idea in taking impressions of the mouth. A few days ago, while administering ether, I saw a nice prospect of a vomiting spell. After the patient began retching severely, I threw a little cold water in the face. The retching instantly ceased, and by repeating it a few times vomiting was prevented, until I had extracted fifteen roots. A day or two afterwards I had a similar case with the same results. The two patients were apparently beyond consciousness."

There is a physiological reason for this. The fifth pair of nerves, so largely distributed to the face, is one of great excito-motor capacity. It is well known that in cases of syncope, the dashing of water in the face excites the respiratory tract. Garretson states that it presides remarkably over both salivary and oro-nasal mucous secretions. By its primary action upon the pharyngeal muscles, and its secondary influence upon the digestive tract, it may well be believed that its excitation, through its terminal filaments, can exercise a control, more or less complete, to prevent nausea.

ARCHIVES OF DENTISTRY.

We have received the first number of this journal, the successor of the defunct *Missouri Dental Journal*, published simultaneously in St. Louis, Chicago, and Atlanta, and welcome it to

the field of dental literature. We have refrained from saying anything concerning it until it should make its appearance, and now we have not the space to say what we would.

It is an encouraging sign when the best men in the profession, without any hope of pecuniary gain, devote themselves to the task of furnishing proper professional mental pabulum for their fellow practitioners. The list of editors of "Archives" has not yet been announced, but we are assured that it contains the names of some of the most able men of the southwest. The initial number gives promise of an excellence which, there is every reason to believe, will be maintained. It will be published by J. H. Chambers & Co., medical publishers, of St. Louis, Mo.

TOOTHACHE.

"It is a significant fact that toothache is almost exclusively an affliction of the northern nation."—*Felix L. Oswald, M. D., in Pop. Sci. Monthly.*

We are accustomed to note all manner of scientific inaccuracies and misstatements in the daily press. But when so accomplished a writer as Dr. Oswald, in the leading journal of its class in this country, makes such an unqualified affirmation as this, some one should ask upon what authority it is done. It has been conclusively demonstrated that dental caries is more or less common to every nation; not only to these now in existence, but to the extinct races as well. Climatic influences and dietary habits only to a moderate extent serve to modify the ravages of this disease. Individual development and bodily conditions may resist it, as they do other morbid states, but that the inhabitants of any zone are free from dental diseases, and from the pain which necessarily accompanies them, should not be asserted by any medical man, unless upon undisputable testimony.

CROWDED OUT.

The inexorable fiat of the printer again shuts out considerable matter that had been prepared for this number. "Our Book Table" shares the fate of sundry editorials, and we have been obliged, greatly to our regret, to condense the announcements of coming meetings, as well as to reduce sundry other articles from a page to a paragraph.

Current News and Opinion.

ANOTHER NATIONAL DENTAL SOCIETY.

To the President and Members of the State Dental Associations :

GENTLEMEN : The foremost men of our profession admit the fact that the name of American Dentistry has not that world-wide recognition which its honor demands and its history would warrant. In our opinion, this is an opportune time for a general movement to place it upon a basis commensurate with its dignity, and we venture to submit the outline of a plan for the purpose, which we think feasible, and which we hope will meet with your sanction and furtherance.

As a nation claiming to lead the world in the science and art of dentistry, we should have one great representative body of the profession to speak forth with authority its aims, duties and attainments.

Let us, therefore, organize a National Dental Association of the United States, composed of delegates elected by the various State organizations, an equal number from each State, to meet annually, and always at Washington, D. C. Thus, we would give to Delaware the same voice as to New York. In order always to secure a full meeting, we would suggest six as the number of delegates from each State ; a like number of alternates having been elected. Let the National Association elect a Board of Regents, one from each State, who shall control its meetings, setting the time, etc.

As important adjuncts to this Association, we believe it would be found expedient to establish an extensive library, to contain dental works and publications, standard and periodical, foreign and native ; and the founding of a national museum, to illustrate the past, present and future of dentistry.

The wonderful benefit to the profession and humanity in general to be derived from these is certainly manifest to every intelligent dentist.

We are sure that room can be obtained in the Smithsonian Institute for the museum, and in the library of the Surgeon General's office for the library. We are equally sure that Congress will

grant an appropriation for both purposes, as is done for the medical profession.

Mature deliberation at the meeting for organizing will suggest the details of a scheme, which we have not thought it necessary to go into here.

In conclusion, we would respectfully urge that you elect, at your present meeting, delegates, with alternates, to meet for the purpose of organization, at the time agreed upon by the chairman of the different State delegations.

Do this in anticipation of like action upon the part of other State societies; then forward to Dr. B. H. Catching, Atlanta, Ga., the name and address of your chairman, and he will act as medium of communication between the different delegations, informing each of the action of the other, thereby bringing about unity of action.

Yours respectfully,

FRANK ABBOTT, New York City.

J. E. CRAVENS, Indianapolis, Ind.

C. T. STOCKWELL, Springfield, Mass.

F. SEARLE, Springfield, Mass.

W. C. WARDLAW, Augusta Ga.

B. H. CATCHING, Atlanta, Ga.

COLLEGE COMMENCEMENTS.

The Eighteenth Annual Commencement Exercises of the New York College of Dentistry were held at Chickering Hall, New York, on Thursday evening, March 6th, 1884.

GRADUATES.

| | | | |
|-------------------------------|--------------|---------------------------|-----------------|
| John J. R. Beer, . . . | Switzerland. | Manuel B. Lèmus, . . . | U. S. Columbia. |
| Henry A. Benedict, . . . | N. J. | Roderick M. Lowe, . . . | N. Y. |
| Cornelius E. Byrne, . . . | N. Y. | William Lowenthal, . . . | N. J. |
| Charles L. Berger, . . . | N. Y. | Charles W. Le Beau, . . . | Ohio. |
| Charles F. Burley, . . . | Conn. | William H. Milke, . . . | Pa. |
| Arthur J. Blersch, . . . | Germany. | Edward T. Mason, . . . | N. Y. |
| William J. Caillè, Jr., . . . | N. Y. | Geo. G. Neish, . . . | Canada. |
| Luis M. Clement, . . . | Panama. | Edwin F. Normand, . . . | N. Y. |
| Oliver L. Cole, . . . | N. Y. | James J. Pruden, . . . | N. Y. |
| Edgar M. Davis, . . . | N. Y. | Walter E. Parrott, . . . | N. Y. |
| Francis Eschauzier, . . . | Spain. | Eugenio E. Quesada, . . . | Cuba. |

| | | | |
|----------------------------|----------|------------------------------|----------------|
| Raymund Faquinetto, . . . | Cuba. | José B. Ross, | Conn. |
| Edmond A. Ferguson, . . . | N. Y. | James A. Roberts, | N. H. |
| Charles B. Gates, | N. Y. | Edward J. Ranhoffer, . . . | N. Y. |
| Friedrich Grau, | Germany. | Joseph J. Strohmeier, . . . | N. Y. |
| Edward L. Goodell, | N. Y. | Nathan Sanders, | N. Y. |
| Stephen S. Hawley, | La. | William M. Stanbrough, . . | N. Y. |
| Arthur C. Hull, | N. H. | James W. Taylor, | Uruguay, S. A. |
| Herman G. Hichborn, . . . | Me. | Charles T. Van Derlip, . . . | N. Y. |
| Eugene L. Johnson, | N. Y. | Wesley Wait, | N. Y. |
| William R. Libby, | N. Y. | Karl R. O. Wendler, . . . | Germany. |

Number of matriculants, 142.

The Twenty-eighth Annual Commencement Exercises of the Pennsylvania College of Dental Surgery were held at the American Academy of Music, Philadelphia, Thursday, February 28th, 1884.

GRADUATES.

| | | | |
|--------------------------------|--------------|-------------------------------|----------------------|
| Laurence C. Anderson, . . . | Miss. | William Koehncke, | Germany. |
| George S. Andrews, | N. Y. | Prosper A. Ladmore, L. D. S., | Eng. |
| Thomas Ashton, | Pa. | Hugh J. Laird, | Pa. |
| William L. Bacon, | Va. | Henry Leffman, M. D., . . . | Pa. |
| Maria Katherine Benkard, . . | Germany. | Alex. P. Long, | Pa. |
| E. R. C. Blackburn, | Pa. | Victor Magliocco, | Pa. |
| C. Curtis Coffee, | Ohio. | Henry Maser, | Ohio. |
| George W. Cupit, | Pa. | C. H. M. Neall, | Pa. |
| George Culbertson, | Pa. | Nazario Noguera, | South America. |
| Maria D. C. Dalmer, | Germany. | Enrique Noguera, | South America. |
| Vasco A. Da Silva, | N. Y. | Harvey E. Nyer, | Pa. |
| Fremont D. Davis, | Ohio. | Juan Ph. Orozco, | Salvador, C. A. |
| Heinrich Deutschmann, . . . | Germany. | Pedre A. Palacio, | Cuba. |
| William P. Dickinson, | Iowa. | Joseph A. Phillips. | Pa. |
| J. Frank Dougherty, | Ohio. | Paula Pratz, | Germany. |
| Sophie E. Feltwell, | Pa. | Charlotte Renard, | Germany. |
| Alexander L. Foerster, | Pa. | Guy C. Rich, | N. Y. |
| August Gassner, | Germany. | Nicholas Rocha, | U. S. of Col., S. A. |
| A. M. Green, | Pa. | J. Sabater Rivera, | Porto Rico. |
| Hermann Gutzwiller, | Switzerland. | John Schembs, | Pa. |
| A. W. Hafer, | Pa. | Valentine Schmitt, | Germany. |
| James J. Hamilton, | Pa. | Courtland S. Service, | Pa. |
| Louis Haubeil, | Germany. | Marcus Sichel, | Germany. |
| Ferdinand Hegemann, | Germany. | T. Frank Spencer, | R. I. |

| | | | |
|---------------------------------------|---------|--------------------------------------|--------------|
| Edwin H. Hewit, | Wis. | Herman Stocker, . . | Switzerland. |
| Kurtz P. Hill, | Pa. | Josè S. Tamayo, U. S. of Col., S. A. | |
| Pantaleon Hoyos, U. S. of Col., S. A. | | Robert Addison Todd, . | Montana. |
| Parker B. Hunt, | Pa. | O. S. Watrous, | Conn. |
| G. L. S. Jameson, | Canada. | Charles Wetzels, | W. Va. |
| George A. Jarvis, | Mich. | Frederike Wiesner, . . . | Austria. |
| George Norman Johnson, . . | N. H. | Marvin A. Wint, | Pa. |
| Arthur S. Kniffin, | N. J. | William N. Wirt, | Ind. |

Number of matriculants, 140.

LEGISLATION.

The following is a copy of the amendment to the Dental Law of the State of New Jersey, which has passed both branches of the Legislature. It originated with the very efficient committee appointed for the purpose, and was taken in charge by Drs. Brown and Clarke, who have persistently pushed it to a successful issue:

1. BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey*, That the first section of the act to which this is a supplement, shall be amended so as to read as follows:

[BE IT ENACTED *by the Senate and General Assembly of the State of New Jersey*, That from and after the passage of this act it shall be unlawful for any person not now lawfully practicing to engage in the practice of denistry in the State of New Jersey unless said person has graduated and received a diploma from the faculty of a reputable dental college chartered under the authority of some one of the United States, and that any person hereafter engaging in the practice of dentistry in the State shall within one month after commencing such practice register his name in a book, kept for that purpose in the county clerk's office of the county in which he shall have engaged in the practice of dentistry, giving his name and the name of the dental college of which he is a graduate, and the name of the place in which he shall have engaged in practice, and for which registry the said county clerk shall be entitled to demand and receive from each person registering the sum of fifty cents; and any person violating any of the provisions of this act shall be liable to the penalties prescribed in the sixth section of the act to which this is a supplement.]

FRED. A. LEVY,
CHAS. A. MEEKER,
JAMES C. CLARKE,
JAMES G. PALMER,
GEORGE C. BROWN,

Committee.

A SIMPLE OPERATION FOR FACIAL NEURALGIA.

Dr. J. F. Heustis, of Alabama, describes a simple operation for the relief of tic douloureux (*Med. News*, Dec. 8th), which is worthy of further trial. Discarding Carnochan's operation of trephining the antrum and following up the nerve beneath the orbit and removing it, and Langenbeck's slighter one of dividing the nerve far back in the orbit with a tenotome and drawing it out through the infra-orbital foramen, Dr. Huestis cut down upon the infra-orbital foramen, and with a fine steel drill, such as dentists use, improvised of piano-wire, dilled out the nerve in its entire length, as far back as the speno-maxillary fissure. The immediate effect of this operation was to abolish all sensation in the previous by sensitive parts, and to enable the patient to use the jaws without suffering the darting pains formerly experienced.—*Maryland Medical Journal*.

REGISTERING VOCAL SOUNDS.

Professor Harrison Allen has, according to the *Philadelphia Record*, invented an instrument by which spoken language can be represented by a series of curved lines on a receiving surface. These experiments originated from observations on the soft palate, and he is now able to register the various phonetic sounds of the human voice. Prof. Allen has already shown by the aid of this device that many of the sounds which have long been considered by elocutionists to be formed by the direct action of the lips, the teeth, or the tongue, are in reality formed by the action of the palate. The subject is sure to prove of interest to the world of science, and Prof. Allen thinks it may develop some very interesting facts.

AN ERROR.

We were mistaken when, in the March number, we said that Dr. E. A. Bogue had accepted the chair of Operative Dentistry in the *Institut Odontotechnique de France*. He has only consented to act as one of the Clinical Demonstrators. We gave the item of the authority of an English journal.

"IT PAYS WELL."

Said an esteemed professional associate not long since : "I am glad that you induced me to subscribe for the INDEPENDENT PRACTITIONER, for I like it ever so much. A single suggestion I got from a recent number is worth more to me than I paid for the entire volume."

Another friend, a few days ago, remarked : "Miller's article in the February number of the INDEPENDENT PRACTITIONER, on the causes of caries, is an exceedingly valuable paper, and I read it with great interest. This alone paid me well for subscribing."

Members of our calling progressively inclined, and who are desirous of keeping pace with the advance which every month discloses, will find that it "pays well" to become familiar with the contents of our dental periodicals. Try it. C. E. F.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

At the annual election of the above named Society, held February 18th, at the office of Drs. Richards and Levy, Orange, N. J., the following members were chosen :

President—Fred'k C. Barlow, Jersey City; Vice-President, G. Carleton Brown, Elizabeth; Secretary, B. F. Luckey, Paterson; Treasurer, Chas. A. Meeker, Newark; Executive Committee, S. C. G. Watkins, Montclair; W. P. Richards, Orange; James G. Palmer, New Brunswick; R. M. Sanger, Brick Church; G. C. Brown, Elizabeth.

B. F. LUCKEY, D. D. S., Secretary.

DOCTOR LORD'S "SICKLES."

The number of inquiries received concerning these valuable instruments, alluded to in the December number of the INDEPENDENT PRACTITIONER, seems to call for a general reply. They were *devised* by Dr. Lord of New York, but *not* "patented," as it is contrary to the nature of this gentleman to secure an individual grasp upon anything he can contribute to benefit his fellows. The "sickles," of various sizes, can be procured at the dental depots. C. E. F.

DENTAL SOCIETY MEETINGS FOR APRIL.

ALABAMA DENTAL ASSOCIATION.—At Birmingham the second Tuesday.

TEXAS DENTAL ASSOCIATION.—In San Antonio, the last Tuesday.

BROOKLYN DENTAL SOCIETY.—Second Monday evening.

NEW YORK ODONTOLOGICAL SOCIETY.—Third Tuesday evening.

FIFTH DISTRICT SOCIETY OF THE STATE OF NEW YORK.—At Utica, April 8th and 9th.

EIGHTH DISTRICT SOCIETY OF THE STATE OF NEW YORK.—At Buffalo, April 15th and 16th.

SPECIFIC DISEASE IN THE LOWER ANIMALS.

Martineau has succeeded in inoculating a monkey with syphilis, obtaining first a hard chancre, later, specific skin eruptions, and after ten months a syphilitic ulcer on the soft palate.

IODOFORM IN SURGERY.

The deaths in Billroth's clinic in 1881 were 9.5 per cent. In 1882 it sank to 6.3 per cent. Iodoform gets the credit for the improvement.

JOURNALISTIC BIRTHS AND DEATHS.

The Philadelphia Medical News says that during the past year fifty-five new medical journals have appeared, and fifteen have died.

REMOVAL.

Alfred J. Nickolds, manufacturer of gold foils, Brooklyn, N. Y., has removed to No. 238 McDonough Street.

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BY FRANK M. DEEMS, M. D., Ph. D., *Late of University of New York.*

OTITIS MEDIA PURULENTA:

BY Prof. DUDLEY S. REYNOLDS, M. D., *Louisville, Ky.*

THE BEST METHODS OF TREATING OPERATIVE WOUNDS:

BY HENRY O. MARCY, A. M., M. D. *Boston, Pres. Amer. Academy of Medicine.*

Also clinical notes from the following and many other well-known physicians :

SURGEON GENERAL WALES, U. S. Navy; Prof. NATHAN S. LINCOLN, M. D., Washington, D. C.; Prof. JOHN A. OCTERLONY, A. M., M. D., Louisville; Prof. CHRISTOPHER JOHNSTON, M. D., Baltimore; Prof. JAMES NEVINS HYDE, A. M., M. D., Chicago; WM. PORTER, A. M., M. D., St. Louis; Prof. FESSENDEN N. OTIS, M. D., New York; Prof. W. W. DAWSON, M. D., Cincinnati; GEO. J. ENGELMAN, M. D., St. Louis.

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GENTLEMEN :

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In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

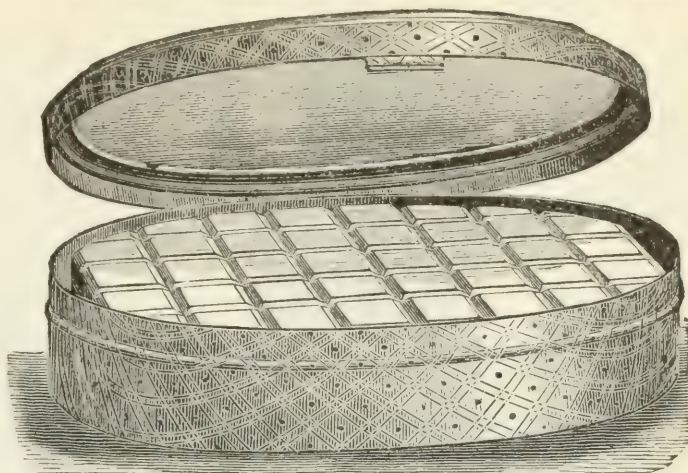
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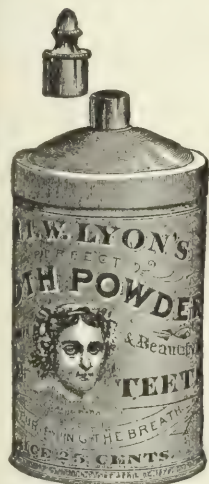


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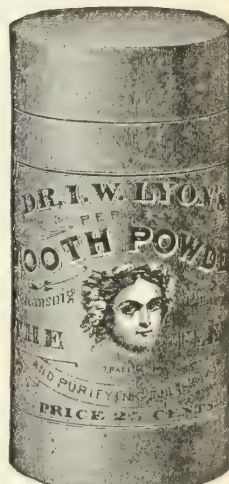
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Heat expands metallic substances. When an alloy has been amalgamated in the palm of the hand the operator will observe that heat is evolved. Now, if this is allowed to depart (said Dr. Whildon Foster, of Baltimore, in criticism of an essay by us), if this heat is allowed to depart previous to its introduction into the cavity, it will not then contract; for crystallization at low temperature is not a process of contraction. A familiar example is the freezing of water and the consequent bulging and bursting of the containing vessel or pipe.

The following named gentlemen endorse it, and we use their names by permission:

| | |
|---------------------------------------|--|
| Dr. JOHN B. RICH,.....NEW YORK. | Dr. E. PARMLEY BROWN.....FLUSHING, L. I. |
| Dr. W. D. TENISON,....." " | Dr. J. BOND LITTIG,.....NEW YORK. |
| Dr. C. S. STOCKTON,.....NEWARK, N. J. | Dr. WM. F. DAVENPORT,....." " |

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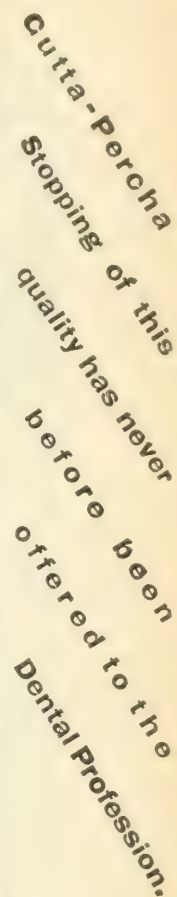
NEW YORK, July 16, 1883.

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COMPOSED OF
BEEF, WHEAT AND MILK,
FORMS IN ITSELF A PERFECT FOOD.

- 1st. **Beef Peptonoids**, as now prepared, is both *pleasant to the taste and smell*.
- 2d. There is no food preparation that compares with it in nutritive properties.
- 3d. It is partially prepared for assimilation, and, therefore, makes but little demand upon the digestive powers of the gastric juice.
- 4th. Being in the form of a dry powder, it will keep in any climate.
- 5th. It contains over 90 per cent. of nutritious matter.
- 6th. It contains twenty-five times more nutritive matter than Liebig's Extract of Beef or similar productions.
- 7th. One ounce of **Beef Peptonoids** contains more nourishment than five pints of beef tea prepared from eighty ounces of beef.
- 8th. Beef tea and similar preparations to Liebig's contain but little else than the osmazone and stimulating properties of the beef, and are, therefore, almost valueless as constructives.
- 9th. **Beef Peptonoids** is the only preparation, rich in nitrogenous matter, that is pleasant to the taste.
- 10th. It has the advantage of being easily and quickly prepared for use.

Dr. Stutzer, Director of the Imperial Agricultural Chemical Laboratory for Rhenish Prussia, Bonn, in a long and interesting article in the *Pharmaceutische Centralhalle* on the nourishing powers of various natural and artificial foods for infants and invalids, gives the following results as far as concerns their nitrogenous nutritive constituents:

| | | |
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| (Beef Peptonoids)..... | | 70.00 per cent. |
| " Caviar | 25.81 per cent. | " Yolk of Egg.....13.01 per cent. |
| " Revalenta..... | 19.93 " " | " Infants' Food.....9.90 " " |
| " Smoked Ham | 19.93 " " | " White Bread.....7.20 " " |
| " Fresh Beef..... | 18.53 " " | " Biscuit.....6.71 " " |
| " Fowl (breast)..... | 16.56 " " | " Oysters.....5.78 " " |
| " White of Egg..... | 13.48 " " | " Cows' Milk.....4.00 " " |
| " Extractum Carnis (Liebig's Beef)..... | | 3.40 " " |

" Dr. Stutzer further exposes the often exposed superstition about the nourishing powers of beef tea. He shows that we would have to take half a gallon of beef tea, made with a pound of beef to each pint of water, before we get as much nourishment as is contained in a quarter of a pound of steak."—*New York Medical Times*.

According to Dr. Stutzer's valuation of beef tea, a patient would be obliged to consume eighty pints of that deceptive liquid (prepared from eighty pounds of steak), before he could obtain the flesh-forming constituents present in one pound of **Beef Peptonoids**.

For sale, in four ounce packages, price \$1.00; also for convenience and economy, we put up **Beef Peptonoids** in 16 oz. tins, which will be sent to any physician's address, post paid on receipt of \$2.50. Sample mailed on application.

Thanking the profession for generous support in the past, we beg to remain,

Very respectfully,

REED & CARNRICK,
182 Fulton St., NEW YORK.

T H E

Independent Practitioner.

VOL. V.

MAY, 1884.

No. 5.

Original Communications.

FERMENTATION IN THE HUMAN MOUTH; ITS RELATION TO
CARIES OF THE TEETH.

BY DR. W. D. MILLER, BERLIN, GERMANY.

(Continued from page 119.)

If we infect a beef-extract-sugar solution with carious dentine, as described in the February number of this journal, using every possible precaution to obtain perfectly pure material and to prevent the access of germs from without, and keep the solution at thirty-seven degrees Centigrade, we may observe the following phenomena: In from eight to ten hours the solution will show a slight cloudiness, which at no time, however, amounts to complete opacity. Tested with sensitive litmus paper, it will be seen that the acid reaction has already appeared. In fifteen to twenty hours the fermentation will generally have reached the most active state, and soon afterwards a colorless, flocky precipitate will begin to form on the bottom of the vessel, accompanied by a corresponding clarifying of the solution, and a diminution of the fermentive activity. After the lapse of forty-eight hours the sediment will have completely formed, and the solution will be almost as transparent as when the experiment began.

The time required for the completion of this series of phenomena will, however, naturally depend somewhat upon the amount of dentine taken for the infection, and the amount of the solution used.

Impurities in the culture manifest themselves in various ways; it may be by an excessive cloudiness of the liquid, or by the formation of a skin upon the surface of the solution, or the failure of the latter to become clear after the regular lapse of time, etc., etc.

Dentine is an excellent medium for separating the different fungi found in the mouth, the most of them not being able to exist in the deeper parts, partly on account of the acidity of the medium, partly on account of the lack of free oxygen. We may, therefore, with the proper amount of care, obtain material of such purity as to produce a pure culture in the first generation.

If we microscopically examine the sediment which has formed on the bottom of the vessel, we shall find it to consist of cocci and diplococci, either single or in chains; in either case without motion. Under a low power they appear round and regular; with $\frac{1}{18}$ oil immersion they are seen to be round or oval, regular or irregular, involuted, etc., presenting the most various shapes and sizes. I

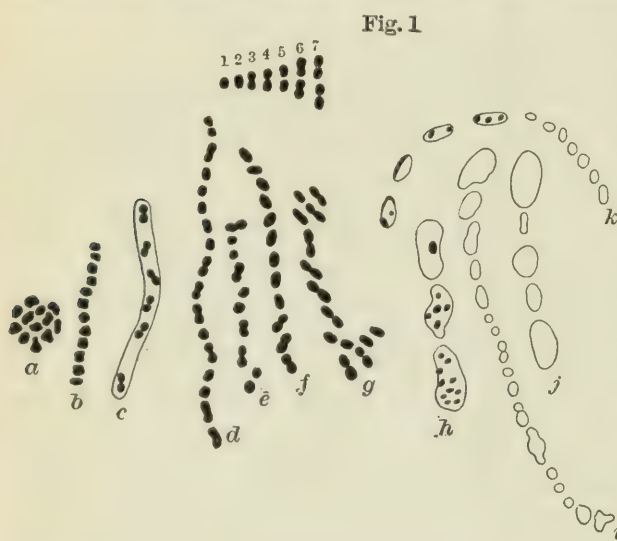


Fig. 1

have never been able to detect the existence of spores, and reproduction takes place only after the scheme presented in figure one, Nos. 1, 2, 3, 4, 5, 6, 7. A coccus which may be round in the beginning, by extension in one axis becomes oval or elongated; soon after it shows a contraction in the middle, resulting in

the production of a diplococcus, or two cocci, each of which may produce two cocci in the same manner.

We find, consequently, in a chain taken from a growing culture, some of the cocci round, others oval, some of the diplococci but slightly contracted, while in others the contraction amounts almost to a complete division. (See Fig. 1, *d, e, f.*) Frequently the cells acquire a pronounced bacterium form, so that if they did not occur in the

same chain with the ordinary forms, one would be in doubt as to whether they belonged to the same species.

The growing cells in a chain sometimes turn upon their shorter axis, and then, growing out in the new direction, produce very peculiar figures. (Fig. 1, *f*, *g*.) In stagnant cultures the cells under high power are mostly very irregular, having in groups the appearance of the bones of the wrist. (See Fig. 1, *a*, *b*.)

Very characteristic are the involution forms produced both in stagnant cultures and in media which are not well adapted to the needs of the fungus. Here the forms and sizes are so various that it sometimes becomes exceedingly difficult, if not impossible, to tell if certain ones are normal or abnormal. (See Fig. 1, *h*, *i*, *j*, *k*.) In exceptional cases the threads surround themselves with a thick gelatinous sheath. (See Fig. 1, *c*.) The protoplasm of the involuted cells generally presents a granular appearance. (Fig. 1, *h*, *k*.)

If we make a large number of cultures at once we will, in about one case out of five to ten (and if the cultures are made in a decoction of malt, much more frequently), meet with a second fungus, essentially different from the one just described. It occurs chiefly in form of bacilli, but also as leptothrix, bacteria, diplococci and cocci singly, or, as is mostly the case, in long zigzag threads. (Fig. 2.)

The discovery of this fungus, with its different forms of development, affords a very ready explanation of the fact that in a single dentinal tubule we sometimes find a transition from leptothrix to bacilli, from bacilli to bacteria, and from bacteria to cocci, an occurrence which I demonstrated nearly two years ago before the American Dental Society of Europe, before the Gesellschaft fuer Heilkunde, in Berlin, and to various private persons, including some of the most celebrated mycologists in Germany.

Those who maintain, as was done in the British Dental Associa-

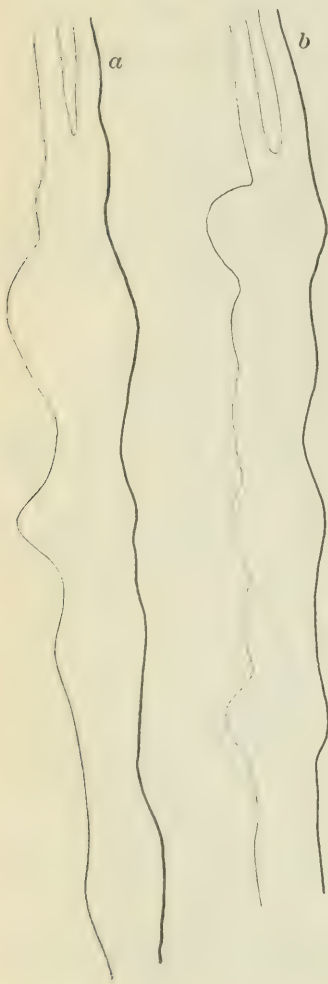
Fig. 2



tion, that such cases may not be found, are responsible for their own mistake.

Macro-scopically, cultures of this fungus in beef-extract-sugar solution are not easily to be distinguished from cultures of that described above. The fungus collects as a sediment on the bottom of the vessel; it never forms a skin on the surface of the liquid, and produces but a moderate cloudiness of the same. In most decoctions, however, they present some peculiarities. Sometimes the fungus floats about in the solution in semi-transparent balls, or rises up from the bottom of the vessel like a miniature cloud of smoke, or collects in small patches on the sides of the vessel, while the solution itself remains almost perfectly clear. The cells are motionless, and do not form spores.

Fig. 3



In order to discriminate between these two fungi I will designate for the present the one first described by the prefix *A* (alpha), and the one under consideration by the prefix β (beta). In all probability the β fungus also produces lactic acid from sugar. I say in all probability, because, though I have always been able to detect lactic acid in cultures of this fungus, I could not say with absolute certainty that cocci and diplococci of the species *A* were not present.

We have, then, in carious dentine two distinct fungi—one always, the other often, present; the former surely, the latter probably, producing lactic acid from sugar. If these fungi are the direct cause of dental caries, we should be able to produce caries by subjecting sound dentine to their action. This I have accomplished, as described in the March number of this journal.

In figure three *a* are seen in outline two tubules of dentine melted together by

natural caries, and in figure three *b* two tubules melted together by artificial caries.

In figure four *a* are likewise two tubules from natural caries, and in figure four *b* two from artificial caries.

It is a fact of considerable interest that, though the fungi themselves are perfectly colorless, pieces of dentine subjected to their action become yellowish, light brown, or dark brown, etc., depending upon the medium in which the culture is made, while different pieces of dentine in the same culture do not by any means necessarily acquire the same color.

The carrying out of this experiment is attended with difficulties, and some may try it and fail. I have failed many times.

The necessity of repeatedly changing the solution very much increases the danger from impurities; especially must the *saccharomyces* be guarded against. The acidity of the medium caused by the caries fungi renders it very favorable for their development, and when they have once found their way into a culture it might as well be thrown away at once. Again, notwithstanding the presence of the pieces of dentine, the solution sometimes becomes sufficiently acid to impair, if not to destroy, the vitality of the fungus. In this case the dentine becomes softened, but only a slight invasion of the tubules takes place. Then, of course, in the very last stage of caries other fungi, especially *leptothrix buccalis*, are present in the decomposing dentine, and sometimes produce an appearance in its *superficial* layers, which I have not attempted to reproduce artificially. It is not difficult, by a simple microscopic examination of the fluids of the mouth, as well as of carious dentine, to find forms morphologically identical with those described above.

In figure five (see next page) is seen in outline a portion of an epithelial scale from the human mouth, highly magnified, with the

Fig. 4

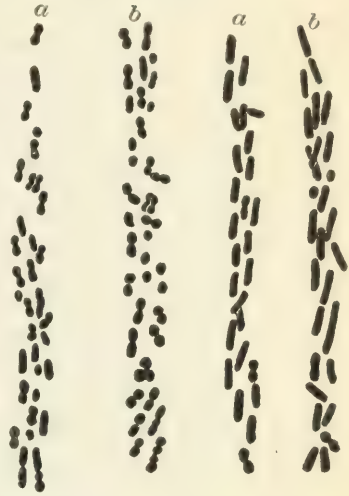


Fig. 5



fungi lying upon the surface. The forms seen in figure six were obtained from a glass tube filled with starch and kept in the mouth over night, while figure seven is from carious dentine.

Fig. 6

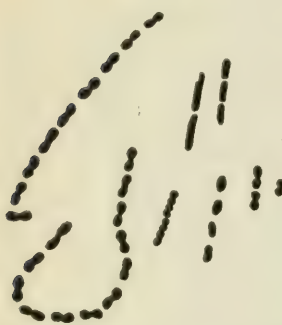
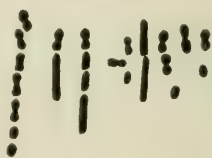


Fig. 7



The *A* caries fungus agrees morphologically with the fungus of sour milk as delineated by Pasteur. Later experiments, however, render it probable that the souring of milk is produced by an altogether different fungus, a short, thick *bacterium*, occurring in twos, seldom fours, which may also be found in the human mouth (though probably not deep in carious dentine), and will be considered at another time.

In the case of both fungi the *fermentation* goes on independently of the presence of free oxygen. I have already shown that where only a trace of oxygen is present, in no way comparable with the amount of acid produced, the degree of acidity was as great as where there was free access of air. Whether, however, this *trace* of oxygen is essential to the life of these fungi—*i. e.*, whether without it they would perish from asphyxia—is a question which we will not discuss here.

It has been generally supposed that the production of lactic acid by fermentation from sugar is accompanied by the evolution of carbonic acid; in fact, Fluegge says that no fermentation can go on without the production of carbonic acid. This statement will hardly be borne out by a study of the fermentation produced by the fungi of tooth caries.

A glass vessel of five hundred c. c. capacity was filled with beef-extract-sugar solution, infected with a pure culture of caries fungi and made air-tight with a rubber stopper, carrying an efflux-tube for collecting the gas over mercury. After twenty-four hours, during which time 1,75 c. c. acid had been produced, one single gas-bubble was collected, which may have been due to a slight change of temperature, as well as to a veritable gas evolution. The splitting appears therefore to be perfectly smooth, and to take place in accordance with the simple formula—



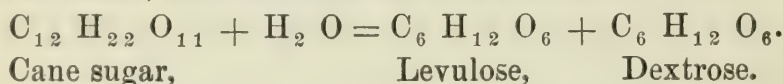
It presents a marked contrast to the stormy character of the butyric and alcoholic fermentations, in case of which the pressure of the gas evolved is often sufficient to burst the vessels containing the cultures.

There is perhaps at nearly all times a sufficient amount of sugar in the oral cavity to enable the fungi of caries to carry out their characteristic ferment action. It remains, nevertheless, an interesting question, whether they have the power to form sugar out of starch; *i. e.*, whether they have any diastatic action. About thirty cultures in an aqueous solution of beef-extract and starch, and in a solution of starch in sterilized saliva, gave for the most part negative results; in exceptional cases a slight diastatic action appeared to take place, which I am inclined to regard as the result of some impurity in the culture, or an error in the experiment.

On the other hand, the fungi appear without doubt to possess the power to invert, or to render non-fermentable sugars fermentable, since cane sugar, which is not fermentable, and does not reduce alkaline solutions of sulphate of copper, acquires both these properties when subjected to their action. That this result is caused by the action of a ferment produced by the organisms, and which may

be separated from them, is, I think, demonstrated by the following experiment: By making a number of cultures at one time in vessels of two hundred to five hundred c. c. capacity, and collecting the sediment which was deposited on the bottom of the vessels, I succeeded in bringing together a considerable quantity of the fungi; this was then treated with ninety per cent. alcohol, filtered and dried in a porcelain vessel, thoroughly rubbed with sand, digested with water at twenty-three degrees Centigrade, and again filtered; the filtrate (which must be clear, and should contain the ferment in solution) was added to a solution of cane sugar, which then showed, in the long tube of a Mitscherlich polariscope, a rotation equal to $5^{\circ}19'$. The solution was now allowed to stand four hours at a temperature of thirty-eight degrees Centigrade, after which time it produced a rotation of only $4^{\circ}54'$, indicating a decrease of about two-thirds of a degree. The solution also produced a slight reduction of an alkaline solution of sulphate of copper; *i. e.*, a certain portion of the cane sugar had been converted into invert sugar.

In the presence of the fungi the non-fermentable sugar, by the action of the invertine produced by the fungi, takes up one molecule of water and is converted into invert sugar, a mixture of levulose and dextrose, both of which are fermentable.



We may say, therefore, that the micro-organisms require sugar to produce fermentation, but that it is immaterial which kind of sugar is furnished them. The fermentation is most active between the temperatures thirty-five and forty degrees Centigrade. Above fifty degrees and below fifteen degrees Centigrade, little or no production of acid takes place.

In addition to these two species of fungi, others of minor importance are occasionally met with in the mouth, and will receive attention at another time.

I would not have any one think that I look upon the above as a thorough consideration of the fungi of tooth caries. To me it appears very imperfect. Nevertheless, I thought it well to present the matter before the profession in the hope that others might be in-

duced to take it up and help to complete the work thus begun. In the next number I will present the results of experiments relating to the action of various antiseptics, filling materials, etc., upon the fungi under consideration.

DENTAL MECHANISM.

BY A. RETTER, D. D. S.

READ BEFORE THE FIFTH DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK, UTICA, APRIL 8 AND 9, 1884.

Rubber is the most abused of all the dental agents employed in mechanical dentistry.

It has been brought into such disrepute by the bungling work of cheap dentists, that many intelligent practitioners have either abandoned its use, or are seriously contemplating such a step. They claim that this material has been the chief cause of the decadence of mechanical dentistry, because of its cheapness and its apparently easy manipulation, which enables any boy or novice to plaster up a set of teeth at a nominal cost, and that in order to restore mechanical dentistry to its former position rubber must be abandoned, and gold, which is more expensive and more difficult to manipulate, must be adopted.

Moreover, it is also claimed that rubber is a non-conductor, and therefore the cause of sore mouths, and of lasting injury to the oral tissues.

While I believe that rubber is greatly abused, I maintain that it is one of the most useful agents we have in mechanical dentistry; that no laboratory is complete without it, and that it cannot and never should be abandoned, unless another material equally as good and as readily manipulated is invented.

The great mass of the people will not and cannot afford the high-priced bases, such as gold and continuous gum, nor can as good average results be obtained by them as readily as with rubber.

Continuous gum, gold, aluminum, Rees's metal, and celluloid,

each have their good qualities, but rubber too has its many advantages, with fewer disadvantages than almost any of the other bases.

It is the most plastic material we have, which property enables a direct application to the model, and assures a good fit when properly manipulated. It is as elastic a material as we have, even more so than gold, and it is also the strongest and most durable for a properly constructed plate, is almost indestructible, and will never wear out. But it is cheap and a non-conductor, and the cause of cheap work. These attributes have brought upon it the undeserved condemnation of well-meaning dentists, who cannot see that it is left with the operator to make the material valuable or worthless, just as an artist may take a canvas and change its value by the skill and study expended upon it.

I cannot for a moment comprehend why we should insert a rubber plate chiefly because the material is cheap, or because some charlatan sets his standard of skill even with or lower than the value of the material. What regular physician would not scout the idea of charging less for his visit because the medicine used was cheaper? Does he not charge for his knowledge, for his study of the case, and for knowing what medicine to give to effect a cure? And why should not dentists do the same? Certainly the construction of a first-class denture requires experience, thought and study.

A boy or novice may soon be able to pack and vulcanize a plate, and file and scrape it; but is this dentistry? Is this all there is in the entire construction of an artificial denture, beginning with the impression and ending with the insertion of a well-fitted and well-articulated plate?

To obtain a nice impression in a delicate and neat manner is by no means an easy task, to say nothing of the study of the model, arrangement of the teeth, and their selection; for we must restore the features of the face, and the expression marred by the loss of the teeth. To do all this properly is not within the province of a novice or a boy, but it requires years of experience, besides considerable natural talent and ability.

It is the duty of every dentist to make use of that material which

in general will produce the best results, whether it be rubber, celluloid, or gold.

The dentist who will recommend a high-priced material simply because it increases the bill is doing as great a wrong as the five-dollar bungler. Nor will gold or other high-priced materials ever elevate mechanical dentistry. I believe that the only way to do this is to give to it our best thought and careful study, and produce superior results. The trouble with rubber or celluloid is not in the material, but in the dentist; let him take pains to elevate his work, and he will elevate himself and dentistry.

Perhaps there would be but few dentists who would not more willingly acknowledge the excellency of rubber were it not for its non-conducting property, which, it is argued, is the cause of sore mouths.

Rubber only too often receives the blame which should be laid in many instances to other causes. I have met with sore mouths under gold, platina, and continuous gum. Indeed, one of the worst cases I ever saw was caused by a partial gold plate, grinding and wearing against the natural teeth. I much prefer for a partial denture a narrow, well-vulcanized, elastic band of rubber, with well-fitted gold clasps or stays; such a piece is lighter and much pleasanter to wear, and less injurious to adjoining teeth. It is surprising how in these cases a little thought and study over a model will bring out ways and means to avoid a large plate, and the covering up of tissues.

Whenever a sore mouth is produced by a rubber plate, in a large majority of cases it can be traced to other causes, such as a want of cleanliness, poor quality of the rubber, and imperfect vulcanization. Rubber loaded with kaolin, or other earths, and not sufficiently or properly vulcanized, soon becomes rotten and filthy, and a source of irritation. In fact, I have noticed but very few cases of a properly fitted plate of well vulcanized, superior rubber, where inflammation could absolutely and solely be traced to the heat produced through the surface of the mouth being covered by a non-conductor. On very soft and flabby gums nearly all of the different bases will produce inflammation, if not kept strictly clean. A gold

plate in these cases may be easier to clean, and therefore be less injurious; but if a rubber plate is vulcanized rather hard, and its surface next to the gum and palate nicely polished, it can be kept equally as clean. In all cases of sore mouths I direct the leaving of the plate out at night, and absolute cleanliness, with the use of Phenol Sodique as a wash.

To obtain a good rubber plate, a good quality of rubber must be used. Of all the different kinds, I have found none as good nor as strong as the Akron rubber. The plaster model should never be subjected to boiling water, whether for cleaning or for bringing the flasks together after packing, both of which can readily be done without its use.

I pack in the new mode heater, using dry heat, and this apparatus I consider so excellent for the purpose that I would have one even if it were useless for any other purpose. Rubber or celluloid will never get into the joints of gum-blocks when packed in the new mode with anything like care. I prefer to use plenty of rubber, with strong pressure. The flasks should never be immersed in water when in the vulcanizer. I place an old, upper half flask, or rim in the bottom of the vulcanizer, and fill with water just to its upper edge, then put in my flasks, heat up slowly, and vulcanize at 320 degrees, one hour and ten minutes. If a set is thus packed and vulcanized without subjecting it to boiling water, the result is a strong, tough, and dense rubber, and no broken blocks.

For celluloid I also prefer the new mode, and for full sets prefer this material in many cases. If care is taken, and a good, well seasoned blank can be obtained, it makes a much more beautiful set than rubber, and probably equally as good. I take two impressions, and make two models, and when I have the teeth arranged and waxed, I wax my second model as I would like to have my blank in shape and size, then invest in a flask, remove the wax and press a suitable blank to shape. When cool, I trim it and use it for the plate. I raise the heat to 320 degrees, and take great pains to get the plate out in such a manner that but a trifling filing and finishing has to be done. To obtain a good celluloid plate, the waxing must be done so neatly that the plate when cut from the plaster

will be ready for the cone and brush. In many cases where I have substituted celluloid plates for rubber, the patients have been much gratified with the result, especially when they were wearing poorly made rubber plates. However, I had also several cases where a first-class rubber plate had been worn for years, and when I substituted celluloid the patients assured me that they could absolutely feel no difference, but they liked its appearance better. I prefer plain teeth for all celluloid work.

DENTAL HYGIENE; THE BEST VARIETIES OF FOOD TO
DEVELOP AND SUSTAIN TOOTH STRUCTURE.

BY S. B. PALMER, M. D. S.

READ BEFORE THE FIFTH DISTRICT DENTAL SOCIETY OF THE STATE OF NEW
YORK, AT ITS ANNUAL MEETING AT UTICA, APRIL 8 AND 9, 1884.

Dental hygiene is a system of principles or rules for the preservation of the dental organs. In one short paper we can only mention a few of the general rules to be observed. Good inheritance, good health, and proper care of the teeth are necessary for sound dentures. We must not consume time by going back of our subject. To start even with it, the most of our directions must be communicated to the children, through their mothers, or those having the care of them.

The object in writing is to impress upon you, particularly the younger members, the importance of instructing your patients in the care of their teeth.

Please excuse me for addressing you in popular terms, as though you were patients rather than dentists. Whoever does his patient good must instruct in terms to be understood, and offer suggestions that can be practiced. It is well known that mothers who understand how to live, and what to eat, can do much for the child during the period of gestation and lactation. The services of a dentist are seldom required for children under four years of age. At whatever age it may be, none of the temporary teeth should be allowed

to decay so as to expose the pulp, if possible to prevent it. The foundation for good teeth really antedates the birth of the child. Previous to birth, the lime elements, which compose the larger portion of teeth, are gathered from the nourishment taken by the mother. Unless her food is rich in phosphates, or bone-making material, not only will the child's teeth be soft, but the teeth of the mother will be drawn upon to furnish the needed supply, and they, too, become soft and sensitive, as every dentist knows from observation.

Thus the mission of a dentist in the cause of humanity extends beyond the limits of filling teeth and furnishing substitutes for those lost. Our legislators have wisely passed a bill for teaching hygiene in schools, and I trust dental hygiene will not be overlooked in the text-books to be introduced. We should teach patients, so far as practicable, that teeth are organized bodies, composed of animal and mineral matter. The latter is mainly lime in various forms, which makes up nearly seventy per cent. of the tooth substance. The animal portion is cartilage; it contains life, circulation, sensibility, etc. Through this medium the tooth receives more or less of the mineral elements upon which teeth depend for hardness and durability. During the period from conception to the leaving off of milk aliment, the growth of bones and teeth is greatly influenced by the quantity and quality of the phosphates furnished by the mother, and the milk diet. Following we give a few condensed suggestions relative to food and diet, collated from the expressed views of the best writers upon this subject.

Analysis of the human body shows a combination of thirteen simple elements, all of which have been extracted from elements contained in the food, and, through the circulation of the blood, are conveyed to the various portions to be built up and sustained.

Though lime-water and phosphates are administered with beneficial results, we look to food as the natural method of furnishing materials for the growth of the bones and teeth. Milk contains all the elements necessary for the growth and development during infancy. It is important that this nourishment should not be robbed of any of its lime, if good teeth are expected. Nearly all food

adapted to man's subsistence contains the necessary elements for the growth of the bones and teeth. Unfortunately, advanced civilization renders it fashionable to sift from our cereals the outer coatings of grain, especially of wheat, which alone contains all the calcium or lime elements found in the grain, and so necessary for the growth of teeth. Modern improvements in milling render it unnecessary to allow coarse bran to enter into pastry, in order to get the benefit of the Graham flour, which in former years was so unpalatable. Though sold under the name of Graham flour, and possessed of all the elements of former times, it is objectionable only in color. When the real merits of Graham flour, oatmeal, and other articles of food which contain the natural phosphates, come to be appreciated, sensible people will greatly increase the demand for such preparations.

Thus far we have considered the supply for tooth formation as furnished through natural channels, and as contained in food. Many families are so situated that they must take such food as they find upon the table, and, from neglect or careless habits of eating, find the system so deranged as not to assimilate the proper elements, even though contained in their food. Medical science has discovered a remedy for this evil in "soluble phosphate of lime," "syrup of lacto-phosphate of lime," etc. This condition often occurs during gestation and lactation. Do not fail to urge upon your patients the use of lime-water, or carbonate of soda in water, with which to rinse the mouth after each meal, and after eating acid fruits. These simple and harmless remedies often give great relief where teeth become sensitive at the necks or margin of the gums. It is the duty of every dentist to insist upon proper care of children's teeth. First, teach the mother or nurse; second, the patient when old enough to comprehend the instruction. In many cases I have utterly refused to operate for neglected or neglectful children, without a promise to aid in the duty of cleanliness. A dentist who regards his reputation cannot afford to fill teeth in neglected mouths. Failure of his best work will be inevitable, and blame will surely follow. Reliable investigation proves that decay in teeth, which is

not from a lack of sufficient lime-salts, is the result of acids, not directly upon the whole surface of the teeth, but between teeth, in fissures or seams, where starchy food or meat fibres lodge, till decomposition or fermentation takes place, which requires only five or six hours at the temperature of the mouth. Thus the importance of cleansing teeth after eating, and before retiring, may be readily seen. During sleep the fluids of the mouth remain inactive, and decomposition sets in, acid fermentation is the result, and cavities are formed or enlarged. Therefore, urge the use of a tooth-pick and floss silk to aid in removing lodgments of food. The frequent use of lemons and acid fruits greatly injures the enamel and bone of the teeth, not so much by the formation of cavities, as by decalcification of the tooth surface, and at the neck of the teeth where the enamel is thin.

Most patients can understand what is meant by "teeth-edge," which is sensitiveness caused by acids. Tell them that the acid has commenced to dissolve the lime, and thus to expose the sensitive animal portion; tell them that long continuance of such exposure will dissolve away the lime and leave the teeth in a condition too sensitive for use. The lime-water above mentioned is the proper remedy.

Let us recapitulate. To produce and maintain good, sound teeth, the work must commence with the mother. The child, too, must be nourished with food containing all the elements found in teeth.

Food must not be allowed to remain around and between the teeth till it ferments and becomes an acid. Avoid extreme use of lemons and strong acids.

Rinse the mouth after eating acid fruit. See that teeth are properly cleansed during any illness. See that tartar or lime does not form around the necks of teeth, as it inflames the gums and eventually causes teeth to loosen and fall out.

Urge cleanliness and frequent watching of the teeth under your care. So will you benefit your patients and honor your profession.

THE D. D. S. IN EUROPE.

BY J. L. TIERNEY, D. D. S., FRANKFORT-ON-THE-MAIN, GERMANY.

A native American graduate on coming to Europe for the first time will be surprised on his arrival to find such a number of so-called American dentists, and he forms the impression that the field is full, when such is not the case. The majority of dentists holding American diplomas are Europeans, and persons of no skill. The public does not and will not recognize them as competent American dentists, and none of the better class will accept their services, but seek out either a native American or a European dentist, who has by his superior skill acquired a first-class reputation. This being the case, one would suppose that an incompetent person holding an American diploma could not harm the dental profession in the eyes of the public. But they do the greatest amount of injury. A few years ago it was a fact recognized by all educated Europeans, that the title of D. D. S. was an evidence of superior ability.

What is the condition to-day? Instead of the D. D. S. being a passport to every social circle, it is day by day becoming more and more marked by suspicion, and this, in my opinion, has been directly brought about by the loose way in which American colleges grant their diplomas. Some of them are either quite reckless as to whom they confer degrees upon, or are altogether too credulous for men in their position. I can point out many instances of European graduates of American Dental Colleges who know scarce a word of English. How could such men understandingly attend lectures?

Others have told me they were never able to fill a tooth with gold while in the college, and are not, even at this day, able to do the most ordinary operations, except in plastics. Conferring degrees upon such persons has naturally brought the honest, competent graduates into disrespect.

A few years ago a dentist of this city, now deceased, who was recognized in all Europe as a man of superior ability, a graduate of one of our best schools, had in his employ a male servant, who never did any work in the laboratory or operating room, except to clean

the rooms after office hours. One day he notified his employer that he would in a few days marry another servant in the house. This was not agreeable to the doctor. He dismissed both of them, and they were married immediately. A few days after this occurrence the doctor learned that his former door-servant had gone to America to study dentistry. This was rather a surprise to him, but greater was his astonishment to learn, barely six months after, that his servant had returned from America with a diploma (from the same college at which the doctor himself had graduated), and had commenced practice in the same city with his former employer; and what was more, at his matriculation he had named as his preceptor his former master, the well-known dentist, and had represented that he had been in his employ several years. This was quite true, but it was simply as a servant. Had the dean required him to produce a certificate from his preceptor, certifying that what he represented was true, he could not have matriculated as a five-year practitioner.

I will cite another recent case in this city. A young journeyman barber, while shaving one of my patients, remarked that he was about to leave his employer. Imagine my patient's surprise on being informed only six months after, that this same barber had just returned from America with a genuine dental diploma from one of our reputable colleges. Being a medical man, he inquired of me how such a person could receive a diploma. I told him I was unable to explain such conduct on the part of such a highly respectable dental college. These, and many other cases, force me to protest in the name of all respectable graduates against this slipshod system of allowing Europeans to graduate without passing the same examination as Americans. If they are so unfortunate as not to be able to understand the lectures, from want of knowledge of the English language, they ought to be obliged to remain longer at college; say three, four, or even five years, or until they become qualified for their degree. Readers of American dental journals are sick and tired of hearing of the efforts of dental societies to erect a higher standard of teaching, when these same societies make no attempt to check the indiscriminate granting of diplomas, regardless of qualification. The system of teaching is quite satisfac-

tory. What is required is more strict examinations, and the placing of all students upon the same level. Europeans should be obliged to pass the same examination as do native Americans. It is not the Buchanan or Morrison bogus diploma factories that are doing the most injury. There is an opportunity for knowing their status, and for openly denouncing them. But it is the reckless manner in which supposed-to-be reputable colleges are conferring degrees upon Europeans, that is demoralizing American dentistry abroad. Colleges seem to act upon the principle that, as the foreign graduates are to live out of the country, they will not probably be called to an account for conferring upon them unearned diplomas.

These are plain statements, but they are true. This protest should have come from other than an individual source, but as it has not been made, I myself enter it, and when called upon to produce the evidence to substantiate my charges, it shall be forthcoming.

CAPILLARY DENTURES.

BY DR. C. H. LAND, DETROIT, MICH.

It is a common belief among dentists that artificial teeth are maintained in the mouth by atmospheric pressure, and the thousands of abominable air spaces to be seen in every-day practice, even among some of the most prominent practitioners, are such positive illustrations of ignorance as to call forth the most severe censure. The motives that prompt a man to create an air space, always the same size and in the same place, the same depth, and in every mouth just alike, must be imagined; they cannot be comprehended.

In a paper entitled "Atmospheric Dentures," which was read before the Michigan Dental Association at its last annual meeting, held March 26, 1884, I endeavored to show the relation of the atmosphere to artificial dentures as serving but a temporary means to establish an adaptation, and this only where an air space had been provided, the tongue being the exhausting medium. Air pressure

cannot exist without the air space and a pump to exhaust it. Yet you will hear dentists talking about fifteen pounds' pressure to the square inch in the mouth.

Capillary attraction is the force that causes the denture to adhere. When two plane surfaces are placed close to each other, and brought in contact with any fluid substance, the force of capillary attraction is manifested. The moisture enters into and between the surfaces, going against its own gravity, causing the plates to unite with considerable force, and, although the atmosphere has a tendency to occupy space with a force equal to fifteen pounds to the square inch, the moisture has driven it out, and occupied the space originally held by it. At this juncture we have arrived at a state of equilibrium, having no air space, no vacuum, consequently no pressure, and if these latter terms were left entirely out of consideration, it would be much better for both the operator and his patient.

In preparing a denture it is simply necessary to make a suitable relief for the rigid portions of the mouth, especially the palatine surface, by using a thin piece of tin or lead covered with tin-foil, in thickness not more than the sixty-fourth part of an inch. This should cover at least four-fifths of the lingual surface. By this means a partial vacuum is unavoidable, until the tissues and fluids of the mouth fill it so completely as to shut out all air spaces, and until this point is reached there cannot be a perfect adaptation.

Therefore, if we pay more attention to augmenting the moist condition, which is the real adapting medium, and a proper system of relief, such expressions as air chamber, air pressure, and vacuum, will be meaningless.

THE WISCONSIN DENTAL COLLEGE.

Translated for the Independent Practitioner from a Paper

BY DR. ADOLF PETERMANN, FRANKFORT-ON-THE-MAIN.

In Deutsche Monatsschrift fuer Zahnheilkunde for March, 1884.

It is but a very few years ago that the trade in doctors' diplomas, which mainly originated from the "doctor factory" of *John Buchanan* in Philadelphia, was stopped through the unmasking of Mr.

Buchanan, and sending him to prison. Again, there are signs of a revival in this ignominious business. At that time as well as at present, it was principally in Europe where their sale was attempted. Before the evil has grown again to larger dimensions it will be well to present the following by way of enlightenment:

The *New-Yorker Staatszeitung*, Number 62, of March 14th, 1881, says: "Wisconsin also rejoices in the possession of a doctor-diploma factory, though it is for dentistry only. The dental college in Delavan (Wisconsin Dental College) furnishes such diplomas *in absentia*, for \$12. The whole college consists of a few poorly furnished rooms in a second story, and its president, Mr. Geo. Morrison, calling himself doctor, is at once secretary, treasurer, and, very likely, the whole college in person. However, besides Morrison, there are also engaged two professors, namely John Morrison (son of the president), professor of dental surgery, and Dr. D. B. Devendorf, professor of anatomy and surgery."

In the advertising columns of the *Kladderadatsch*, the *Fliegenden Blätter*, etc., could be seen lately an advertisement offering the "dental diploma of an American University." Upon asking for further information the always ready agent, who is domiciled in England, furnished the following answer:

"WEST GRIMSTEAD, April 17th, 1883.

"DEAR SIR.—In reply to your communication I wish to say that I can procure you the diploma of Doctor of Dentistry from a Dental Academy in the State of Wisconsin, America. The condition is the filing of a paper pertaining to dentistry or dental practice. In America, whoever is a dentist is a doctor, but if desired, the additional insertion that you were created a dentist may be made. The transaction of course to be confidential. Cost, 500 marks. After you have made up your mind about getting the degree, I shall be pleased to give further information and attend to the matter. The academy is authorized by the State to confer the degree of doctor, and the diplomas are recognized everywhere in the United States.

"Respectfully,

"W. ROLT.

"West Grimstead, Sussex, England."

Last year the fraudulent concern called the "Wisconsin Dental College" sent its offers *directly* to all conceivable addresses in Germany. This fine college offers its diplomas for doctor of dental surgery for \$12 cash. In order to disguise the enormous swindle, these marketable and worthless diplomas are conferred *honoris causa*, for, as the inquiries instigated by the German Imperial Chancellor have shown, and as had been confirmed by the American Minister in Berlin, American Universities and Colleges are not allowed to confer degrees *in absentia*.*

We now see the American law evaded through the addition of *honoris causa*.

Enclosed in one of these offers was the following order in blank for such a diploma :

.....188 .

This statement is made to the Faculty of the Wisconsin Dental College, located at Delavan, Walworth Co., Wisconsin, for the purpose of procuring an honorary diploma and degree D. D. S. (Doctor of Dental Surgery).

I am a regular practicing dentist.

I am a resident of

Age.....years. Have practiced dentistry.....years.

Signed.....

Witness.....

July 2d, 1882, the courts in Bremen sentenced, in due form, the dental artificer, Edward Hanft, to a fine of sixty marks, or twelve days' imprisonment, for illegally using the title of doctor, and for assuming additionally the title of American dentist ; they also ordered the removal of his sign, and of his so-called dental diploma. Hanft declared that, based upon a diploma of the Wisconsin Dental College, he considered himself justified in using the above titles. It was established in the judicial proceedings that this college is a swindling corporation, which has but the single aim of selling dental diplomas. The German Consul in Chicago reported concerning the Wisconsin Dental College as follows : "Unconditional liberty of

*See *Zahnärztlicher Almanach* (Johannes Alt, Frankfort-on-the-Main, publisher). Vol. 1879, page 86, and vol. 1881, page 144.

trade is ruling there. Two or three persons may form a corporation, and acquire for it the rights of a judicial person. The president of the college, Mr. Morrison, told him in reference to the accused, Hanft, that he had been extraordinarily well recommended to him (Morrison) and his colleagues. Hanft informed him (Morrison) that he had practiced as a dentist in Europe for five years, whereupon the degree of doctor was conferred upon him."

The Attorney-General proved that Hanft did not occupy himself during five years with diseased teeth, but with butter instead, in the store of a dealer in Hanover. Thus, based upon untrue statements and without preceding examination, he procured, for a money consideration his dental diploma, which was devoid of any value.

The Secretary of the Interior at Washington, and the Postmaster General of the United States of North America, have issued the following letter in reference to the fraudulent transactions of the Wisconsin Dental College:

POSTOFFICE DEPARTMENT,

WASHINGTON, D. C., July 13, 1881.

The Honorable the Secretary of the Interior.

SIR.—I have the honor to acknowledge the receipt of your communication of the 11th instant, referring to this department a communication from the Commissioner of Education, enclosing letters, etc., showing the fraudulent character of business carried on by one Dr. GEORGE MORRISON, President of Wisconsin Dental College, at Delavan, Wis.

In reply I have to state that I have this day issued an order to the Postmaster at Delavan, Wis., forbidding the payment of money orders, or the delivery of registered letters, to the said Dr. GEORGE MORRISON.

Very respectfully,

THOMAS L. JAMES,

Postmaster-General.

But, besides the above communications, I am assured that the Wisconsin Dental College, with its nefarious trade in dental diplomas, has many times been exposed by American dental periodicals. Noticeably by the Dental Cosmos (Chestnut Street, corner of

12th, Philadelphia), vol. 1881, pages 157, 490, 555, and vol. 1884, page 28. Also, Johnston's Dental Miscellany (1260 Broadway, New York) speaks very elaborately on the fraudulent and shameless operations of Mr. Morrison and his so-called Wisconsin dental college.

SECOND ARTICLE FROM THE SAME JOURNAL, OF APRIL, 1884.

Translated for the Independent Practitioner.

BY MISS CORA FREEMAN.

To my communications in the previous number of this Journal, I to-day add the following :

The Frankfort newspaper published in its advertising columns the following announcement: "Doctors' diplomas of dentistry, philosophy, law, etc., are furnished honorably and secretly. Address, C. R. (care of Stationer), 10 Duke Street, Bloomsbury, London, W. C."

In answer to inquiries made at the above-mentioned place, under an assumed name, two letters were received from a certain "Professor" G. Rumler. The first letter is not especially noteworthy. It is an ordinary general offer in which secrecy is promised. The second letter reads as follows:

LONDON, 32 THORNHILL CRESCENT, BARNSBURY.

March 10, 1884.

Dear Sir :

In answer to your honored letter, I respectfully inform you that you are negotiating with a *gentleman*, who procures for you the diploma of a thoroughly respectable Institute, and one that is entitled to confer the degree of doctor. The name of the institution in German is "Wisconsiner Zahnarztliche Academie" (Wisconsin Dental College).

The fee you can deposit in any banking house in Frankfort, and have the deposit in these negotiations credited to me, upon which I will immediately order the diploma for you. If you do not wish to enter into any bank business on trust, the simplest way would be for

you to send me two hundred marks now, and the remaining two hundred marks on receipt of the diploma. With the exception of the four hundred marks, you have no further costs. Please send your full name with order.

Further, I beg you to subscribe your name to the enclosed printed offer of promotion, at the place where the word "signed" is printed.* The rest I will fill out myself. You see on the back of this circular the statement of the president of the college, that the degree of doctor can only be conferred after it has been confirmed by me. It will be about five weeks before I can furnish you with the diploma.

While I respectfully await news from you, as well as the return of the subscribed order, I am,

Yours very truly,

PROFESSOR DR. G. RUMLER.

The words written on the back of the aforementioned circular read as follows:

DELAVER, WIS., U. S. A.

This statement will be honored from any regular practicing dentist, if endorsed by Prof. Dr. Rumler.

GEO. MORRISON, President.

So this *gentleman*, Mr. "Professor Dr." Rumler, procures for everybody (even under an assumed name), without any other consideration, on payment of 400 marks, and without any scientific qualifications or examination of circumstances, a diploma as doctor from the *respectable* Wisconsin Dental College. A fine state of affairs. From my first article on this college it can be learned that Mr. Morrison, for only \$12, furnished a similar diploma, for which 400 M. are demanded here. Truly, Mr. Rumler carries on a disreputable but profitable trade.

*Such a document is printed in the preceding communication, but the new one has the addition of a raised stamp, "Wisconsin Dental College, Incorporated July, 17, 1880." P.

IS DENTAL WORK EXPENSIVE.

BY D. R. STUBBLEFIELD, A. M., M. D., D. D. S., NASHVILLE, TENN.

Probably every practitioner has had this question directly or indirectly propounded to him. Indeed, in the mind of the average individual, it is a deep-seated conclusion that dental service, of all work, is the most dearly paid for.

It behooves us as men and members of an important branch of the science of human conservation, to set the facts in order, and no longer be misrepresented willfully or unintentionally, as the case may be. We have a right to demand a fair hearing, and we ought not to ask more than this.

The question may arise just here as to whethêr any man can impartially consider a case in which he is interested. Without delaying, I think there are some who can reach a state of almost perfect self-abnegation, and might be trusted. It is a question, though, which each may settle in his own mind, for we may not judge for others.

First, let us have a good understanding as to what we are considering, for argument can be conducted fairly only when the primary proposition is understood alike by both. If I discuss one thing and you another, we may have four sides complicating our discussion of a picture which should have but two sides. Good dental work is the only kind to be considered, because, as all will agree, imperfect—that is, bad dental work—is not worth any price. Everybody has a right to demand good dental work as a fair return for value received. But when good dental work has been given, is the price set upon it by a fair-minded dentist to be considered exorbitant? That is the question. Price is regulated, as economists say, by demand and supply. I have my case then, if I show that both, in this instance, conspire to justify even a high price for this kind of work. •

The demand for anything depends upon the nearness which that thing approaches our necessities, or should intrinsically depend upon such a basis. Of course, this must be modified by the consideration of true and fictitious wants, and the degree with which a

want is felt, for it may be imagined that a true want is not felt, and a fictitious want is very much felt. I have not time to elaborate this, but no one of fair mind will take this issue when I make no challenge, especially when I point it out myself. I merely wish to show that the want of dental work is a real one, whether felt or not, because of the importance of the teeth. On this I propose to base the argument for demand. Every doctor will tell you of the importance of thorough mastication, and any body knows just how important the teeth are for that purpose. You may cut up your food in small pieces, and you may even confine yourself to liquids, or semi-solids which may be easily swallowed, but you do not make any argument against the utility of the teeth and the importance of mastication. Along with mastication nature has designed that insalivation, or thorough admixture of food and saliva, shall take place, and this takes place most perfectly when mastication is most perfect. Diseases result, or when present are aggravated, by the presence of unmasticated food in the alimentary canal. To preserve these organs then, or to repair them when invaded by hurtful agencies, is an important work.

Here is another and less positive way to prove the importance of the teeth, or, rather, their value: Ask the first man you meet who has good teeth, what he would take for the four front ones, and what do you suppose he would say? Depending upon the condition of his stomach and pocket-book, he would say from five dollars to fifty thousand dollars. But how much would you, Mr. I. P., say yours were worth each? Fifty dollars? that's fourteen hundred dollars for twenty eight; five hundred dollars? that's fourteen thousand dollars for that number. As you are able to live, money could not buy them, I am sure.

Good teeth are blessings which cannot be too highly estimated for health, or for beauty's sake. And remember they, like other blessings, brighten as they take their flight. Artificial teeth! Their very existence proves my proposition; and they, at their best, are but judicious imitations, which rarely, if ever, equal their natural predecessors. In fine, the demand is incontestible.

Now for the supply to meet this demand. Good dental work can-

not be done repeatedly by a bad dentist. I make no provision for the occasional or accidental work—bad by a good dentist, and good by a bad dentist—for in the one case you can get redress by the showing, and in the other no positive skill is displayed. I say good dental work can be done repeatedly only by a good dentist, because it requires skill and attainments which only such have achieved. Every workman in any calling is not as skillful as the best in that calling. In fact, a number one man in any is the exception and not the rule. Apply this to dentistry. Every man who has the name of dentist cannot do the highest type of dental work—that type which you have a right to demand—just as every man who can drive a nail is not a first-class carpenter. There are grades among dentists, just as there are in any calling in life; and the tree that brings forth good fruit continually is the good tree, and *vice-versa*.

As, then, good dentists are the exception and not the rule, if there is any demand (and we have shown there is) for good dental work, the supply cannot be so plentiful as to glut the market.

In this connection I may say the prices for the best work in various pursuits differ as these pursuits differ. For instance, a wood-cut artist is not paid so well as an engraver of bank notes, and you would not think of paying as much for treating your cart-horse as for treating your thorough-bred colt.

Now, mind you, we suppose in every case that the service is satisfactory, and as such is entitled to the best price for such work.

Good dental work, which you have a right to demand, stops the destruction of the teeth, as a rule, and preserves these important organs for long years, if not a lifetime of usefulness. As such it ought to be paid for equivalently and equitably, even if it does seem at the time to take a good many dollars. Say to your patients, get none but the best dentist and demand his best skill, and you practice economy. Get one on whom you can rely, take his time and skill (that, if anything, he should be paid for), and then do not question his bill and wound his feelings, for you only make yourself small by so doing. And when at the meridian of life you still have the ability to save your stomach much hard work by proper chewing,

and your health many a midnight inroad of acute indigestion, give your dentist some credit when you applaud your own good judgment for your early wisdom.

INCIDENT OF PRACTICE.

BY C. E. FRANCIS, D. D. S., N. Y.

Mr. M., a New York merchant about sixty years of age, called some two months ago, complaining that for a long time he had experienced a decidedly unpleasant sensation all about the left side of his face, the gum and roof of his mouth feeling sore, and the soreness extending to the eye, the temple, and the ear. He had a wearied and care-worn look, was much depressed in spirit, and declared that he felt "miserable." He had for a long time been treated for "chronic catarrh," and was still under treatment, but with no improvement.

Removing a partial artificial denture, the roots of the left bicuspids were discovered in a badly decayed condition. These were extracted, and, through the alveolar openings of the second, considerable pus escaped. A probe introduced penetrated the antrum; tepid water forced into the alveolus brought a quantity of vile-looking pus through the nostrils.

This case received daily treatment for two weeks. Tepid water, seasoned with chloride of sodium, was first injected, followed by carbolyzed water, to which was added a few drops of tinct. calendulæ, and the space kept open with tents of cotton coated with carbolyzed glycerine.* Indications of necrosis being discernible about the alveolar process, acid sulph. arom. was several times applied.

After the second week, treatment was less frequent, and now the case is all right, requiring no further care.

The patient is as well as ever, is bright and happy as possible, looks at least ten years younger, and declares he feels "twenty."

Query. Is dentistry only a mechanical art?

* Carbolyzed Vaseline is perhaps even better.

Reports of Society Meetings.

MISSISSIPPI VALLEY DENTAL ASSOCIATION.

FORTIETH ANNUAL MEETING, HELD AT CINCINNATI, MARCH
5TH AND 6TH, 1884.

PHONOGRAPHICALLY REPORTED FOR THE INDEPENDENT PRACTITIONER.

BY F. W. SAGE, D. D. S.

(Continued from page 205.)

Upon motion the third and fourth subjects were considered conjointly for discussion. They read as follows: "What progress has been made in arresting and preventing decay of the teeth in the last five years?" "In what respect, if any, are decayed teeth better filled now than ten years ago?"

Dr. H. A. Smith—I infer from the wording of the third subject that the committee is of the opinion that we have made no progress during the past five years. I agree that we have made no progress so far as filling teeth with gold is concerned. Fillings were made fifteen or twenty years ago which are to-day absolutely perfect. And what is peculiar, they are apparently as solid as coin. There has been no advancement on that character of operations to this day. In regard to the manner of filling teeth with gold, I do not think there has been much advancement, but there has been a decided advancement made with respect to histological conditions; that is, with respect to protecting the sensitive dentine from the contact of the gold. I think we save many more teeth, by the judicious use of plastics as a foundation for gold, than formerly. I think a man who can make two operations in an hour, which another dentist requires two hours to make, serves his patient just as well, and himself better. There is oftentimes too much excavating done. I have seen students in this college go directly for the pulp, because the tissue was quite soft in that direction. It is not necessary to remove the last vestige of softened dentine. I believe in making simple cavities out of compound ones. Where there is a large portion of gelatinous tissue, I would

protect it with a thin film of paraffine. I use, first, an antiseptic application, drying the cavity with the warm-air syringe, wiping out with a little alcohol, drying again, and following this with a little paraffine, which melts at about one hundred and ten degrees Fahrenheit, and when cooled forms a persistent film. We can by that method obviate the necessity, oftentimes, of extensive excavating. Kill the germ of the bacteria, and then fill up the tubules.

[Dr. Smith illustrated on the board the use of plastics, preparatory to the insertion of the gold filling.]

Dr. G. W. Smith—My treatment of large cavities is similar to that, excepting that I remove the superincumbent tissues over the pulps that have lost their lime-salts. Then I cap the pulp with oxide of zinc, borax, and creosote.

[To Dr. Hunter's inquiry as to what object he had in using the borax, Dr. Smith returned an answer in explanation, which was apparently vague.]

Dr. Tuft—One of the signs of progress at the present time is the general diffusion of information, and the general awakening of interest in the matters of hygiene, and the relation existing between the teeth and the health of the system at large. For the last fifty or sixty years these matters have received consideration from men here and there in the profession, but the rank and file have perhaps restricted themselves too much in their investigations to technical matters. I think, too, there has been some progress made in filling teeth of late years. Not only are more new appliances being introduced, but they are being more generally adopted. Formerly there was a more conservative spirit exhibited; only the bolder ones ventured to adopt new appliances or methods. The increasing numbers of young men entering the profession perhaps accounts for this; then, too, the greater uniformity of the standards by which operations are judged, and the more definite apprehension of just what is required in operations, have led to a quicker appreciation of the suitability of appliances to the purpose for which they are designed. All this, of course, affects more or less directly the question of preventing decay of the teeth. The treatment of sensi-

tive dentine at one time occupied a large part of the time in our Association. Now, we seldom hear it mentioned. The management of this affection has become comparatively easy. There are so many obtunding agents that we give ourselves no concern about it. Some of the best of these have been introduced within the last two or three years. My attention has been called to *Menthol* for anti-septic purposes. I have been using it also for sensitive dentine. It serves a valuable purpose. I dissolve the crystals to saturation in alcohol and tincture of aconite, and apply to the superficial decay. I have used it for two or three months.

Dr. Terry—I have been experimenting for twenty years in the direction of preparing a good obtundent of sensitive dentine, and have been many times disappointed. After long investigation I have succeeded in compounding a medicine, by the use of which an exposed pulp can be saved in nine out of ten cases. By using this preparation upon an exposed pulp, following its use with a capping of iodoform, and this with a cap of oxyphosphate, good results may be expected. It may sometimes be necessary to bleed the pulp slightly. I have used it in my own practice about two years, and have never lost a case.

Dr. Berry—For obtunding sensitive dentine I use German creosote, which is superior to the American, and contains no carbolic acid.

Dr. H. A. Smith—Dr. Terry's obtundent has been used with satisfactory results in the infirmary of the Ohio Dental College.

Dr. Corydon Palmer was the first to direct attention to the fact that the first annealing of gold foil is the best. Every subsequent annealing seems to impair its value for dental fillings, and to destroy certain desirable qualities. During the past year I have confined myself to the use of unannealed foil, making it relatively cohesive as required. I am satisfied that is the proper way to work with foil. The students in our college have used it in accordance with the idea I have advanced, and I think they almost unanimously confirm Dr. Palmer's theory.

A Voice—Are you able to make it sufficiently cohesive for large contours?

Dr. Smith—I was for a long time apprehensive that for such cases it could not be as good as cohesive foil. But experience has reassured me. Strips of No. 4 soft foil, annealed and rolled into a rope, may be worked into the cavity without so great liability of the instrument passing through it. It seems to me that I can use it more rapidly, and that less force is required to consolidate it.

Dr. Van Antwerp—I have been using unannealed, untrimmed foil, and like it very much better than cohesive foil. It feels soft, like buckskin, and has none of the harsh, crisp qualities of cohesive foil. I have made heavy foil in my rolling-mill by placing gold between sheets of paper and rolling it down. It makes a magnificent heavy foil. I have frequently used aqua regia to etch the surface. Of course the acid must be afterwards removed. I have noticed that a second annealing renders the gold harsh.

Dr. Jay—I avoid a second annealing. Use soft foil as such, for filling, in suitable cases. In all cases I want to anneal the foil myself.

Dr. Taft—Recommended for large shallow cavities the use of a thin plate of pure gold, made by melting foil scraps and rolling them down to No. 28 or 30, Stub's gauge. Solder on to this a staple, and attach with cement. The question what to use for very soft, frail teeth, is oftentimes a perplexing one. I sometimes say to myself, "what can I do?" I know it will not do to use gold. I have been experimenting with materials to use next to sensitive dentine under gold fillings. My object has been to fill up those imperfectly formed tracts that are shown under a magnifier in many soft teeth. I think varnishing the walls of such cavities is a step in the right direction. Oxy-phosphates, tin, etc., are all very well to use, but after all, we do not want to be restricted to such temporary expedients. We do not enjoy doing these operations over and over, again and again.

Dr. Callahan—I have used Robinson's Felt Foil, covering with gold, in approximal cavities. I like the results better than in the cases of many all-gold fillings I have made. This material, where it is not exposed to wear, sometimes discolors. But after a long time I have discovered no sign of softening around the edges of fillings made of it.

Dr. J. Taft—I have used tin to a limited extent. My impression is that the Globe Tin Foil of the S. S. White Co. is the best. It has a very peculiar frosted or crystallized surface, and works almost like a plastic. I value it very highly.

Dr. Wright—What number do you use?

Dr. Taft—About No. 10, I think. It works down like a piece of chamois skin, holds its place well, and takes a smooth finish. I have never used the Robinson filling.

Dr. Callahan—There seems to be fear on the part of many who are trying this material that it is not very strong. I have used it for two years, and have had no failures.

Dr. Van Antwerp—Can you make gold weld to it?

Dr. Callahan—Yes.

Dr. Emminger—Stated that in order to make the gold weld to it a layer of the felt foil should be laid upon the portion previously condensed, and upon this the gold should be tacked, and the two pieces worked down together.

Dr. Taft—I am glad to hear that, for I am told that some have not succeeded in making gold weld to it.

Dr. Campbell—I have succeeded by using No. 30 or 40 gold, but I use sharp-pointed pluggers. Unless it is thoroughly well condensed it is not reliable.

(TO BE CONTINUED.)

NEW YORK ODONTOLOGICAL SOCIETY.

This Society held its March session at the house of Dr. Bodecker, on the evening of the 18th ult., the president, Dr. Jarvie, occupying the chair.

A plaster model was exhibited, representing the mouth of a child eight years of age, with a misshaped central incisor, somewhat dwarfed, pitted, and out of proper position. Opinions solicited brought out several responses, all to one effect—to “leave it undisturbed for the present,” or, according to Micawber, “to wait and see what may turn up.” The “misshaped” tooth was apparently an intrusive supernumerary.

Dr. C. F. Parker—Exhibited beautiful specimens of gold crowns, swaged from a single plate of gold with metal dies.

Dr. N. W. Kingsley—Considered them faulty, inasmuch as crowns so made could not be fitted accurately to the cervical parts of teeth or roots. Dr. K. explained his method of making gold crowns, first fitting a ferrule-like band around the tooth to be enclosed, taking care to have it extend beneath the border of the gum, and clasping the tooth snugly. With this band adjusted, and the open part filled with wax, a “bite,” or impression, is taken of the grinding surface of its occluding companion, then a cast poured, from which a die is made for swaging or punching out a cap, which is fitted and soldered to the band. The completed crown is secured to the natural organ with a stopping of oxy-phosphate of zinc. A small hole should be drilled through the gold crown before the final adjustment, to permit the excess of filling to escape.

Dr. S. G. Perry—Makes similar operations, but forms his crowns of platinum.

Dr. E. A. Bogue—Asked if any of the gentlemen present had used gutta-percha stopping for securing caps or crowns. He had much confidence in this material.

Dr. C. E. Francis—Stated that he had frequently used gutta-percha for this purpose, and related an instance where he secured a gold crown to a fractional part of a bicuspid over twenty-five years ago, and which did good service for eight years. A severe lateral strain finally caused the tooth-fragment to break, but the dentine and stopping were both white and clean. Dr. F. stated also that Dr. Kingsley had described in detail his own method of making and setting gold crowns; and of the many he had adjusted, not one, so far, had failed or disappointed him.

Prof. Frank Abbott—Remarked that gold crowns had been used for over a quarter of a century, by Drs. Dwinelle, Francis, and others, as shown by records, etc., and, consequently, were “nothing new.”

The President introduced Prof. Chas. Mayr, of Springfield, Mass., who gave a dissertation on the “Chemistry of Antiseptics and Disinfectants.” Drawing an explicit line of distinction be-

tween these agents, he dilated broadly upon each. "Disinfectants," said he, "by chemical action destroy odors, while antiseptics destroy agents that produce odors. The best disinfectants are those that impart the greatest amount of oxygen, the bromides coming first on the list. The timely use of antiseptics would render the use of disinfectants unnecessary. In the treatment of diseased teeth, three objects are to be sought: First, to destroy and remove the infusorial germs; second, to embalm any germs still remaining; third, to keep out a new stock of infusoriæ. The best antiseptic, and surest agent for killing the germs, is bichloride of mercury. This, however, is a heroic agent, which destroys not only germs, but tissue, hence must be used with great care. It kills bacteria instantly at a strength of $\frac{1}{2000}$. The cavities can be bathed with this solution, but afterwards should be well washed out with water. After destroying the germinal matter, the embalming process may follow. Carbolic and salicylic acid, eucalyptus, ol. terebinth, and some essential oils, are used for this purpose." Prof. M. explained the properties and action of several of these disinfectants, classing carbolic, kresylic, and phenic acids, and creosote as members of the same family.

"After the embalming process, the cavity must be so securely sealed that nothing can enter, for if the slightest opening is left the infusoriæ will sail in. Bacteria will follow wherever moisture can penetrate. They will enter a crevice of $\frac{1}{3000}$ of an inch.

"The enamel is sufficiently compact and dense to keep out putrefactive elements, but the exposed dentine is no barrier to their ravages. Arsenic is not antiseptic. Vessels in which it is kept, and their stoppers, gather coatings of mould. Arsenic favors putrefaction. A compound of boracic acid with glycerine forms an excellent antiseptic. Without living organisms there can be no putrefaction. Bacteria are found in healthy blood. There are no antiseptics that equal the mercurials. Iodides, iodoform, etc., and the bromides, emit unpleasant odors, and hence are objectionable. It is the same with turpentine. This acts only from the oxygen it imparts. Kresylic acid, as a disinfectant, is longer retained in the cavity

than most other agents, consequently is better. Disinfectants are purely chemical in action."

In response to an inquiry by Dr. Atkinson, as to the difference between "fermentation" and "putrefaction," Prof. M. stated that "fermentation is the breaking up of substances not containing albumen or nitrogen; while putrefaction breaks up substances containing albumen, nitrogen, etc. One acts on vegetable product, and the other on animal tissue."

FIFTH DISTRICT DENTAL SOCIETY OF THE STATE OF
NEW YORK.

The sixteenth annual meeting was held at Utica, April 8th and 9th, 1884. President, Dr. G. V. N. Relyea, Oswego; Secretary, Dr. G. L. Curtis, Syracuse.

The first session was mainly occupied with routine business, and the reading of the annual address by the president.

At the evening session a paper was read by Dr. S. B. Palmer, upon "Dental Hygiene; the best Varieties of Food to Develop and Sustain Tooth Structure"; (See page 237). At its conclusion the members separated into parties of four or five, and discussed the subject, thus giving an opportunity to obtain the views of all, and the substance of the whole was subsequently reported to the meeting by the chairman of the several sections. The general tone of the remarks was in favor of the coarser foods, the use of phosphates, and the promotion of exercise of the teeth and jaws by a resistant diet.

At the morning session of Wednesday Dr. A. Retter read a paper upon "Dental Mechanism." (See page 233).

Dr. Emmons—Said that he had been conducting a series of experiments with rubber of different manufacturers to determine the comparative strength. The first specimen broke under a strain of two pounds; the second at six pounds, four ounces; the third at nine pounds, seven ounces; the fourth at thirteen pounds, six ounces; the fifth at twenty-four pounds, three ounces; the

sixth at twenty-seven pounds, two ounces; showing a wide difference in the strength of different manufactures of rubber.

Dr. Relyea—Said that he had sometimes obtained an impression cup for difficult cases by modeling wax over a cast drawn from a wax impression, and covering it with several coats of shellac.

Dr. Emmons—Had moulded rubber impression cups over such a plaster-cast.

Dr. Retter—Gave his experience in the use of bromide of ethyl, as an anæsthetic, and subsequently submitted to its administration at the hands of Dr. G. L. Curtis. The anæsthesia was very profound, was accompanied by no signs of nausea, and the return to entire consciousness was easy and natural, the period of anæsthesia being less than two minutes.

An invitation was received to hold the semi-annual meeting in conjunction with the Sixth District Society, at Syracuse, on the second Tuesday in October.

The following officers were elected :

President—Dr. C. E. Cherry, Syracuse.

Vice President—Dr. C. C. Smith, Ilion.

Recording Secretary—Dr. G. L. Curtis, Syracuse.

Corresponding Secretary—Dr. B. T. Mason, Phœnix.

Treasurer—Dr. J. C. House, Lowville.

Librarian—Dr. A. N. Priest, Utica.

Editorial.

FILLING NEW CANALS.

Many substances have been used for this purpose, and dentists who, by long practice, have perfected the manipulation of any one of them, and have met with a reasonable success in their use, are too often inclined to be opinionated and dogmatical in their teachings, forgetting that their success may be due to their exceptional skill in a method which may not be in strict accordance with physiological law. The young men of the profession desire

to know the best and readiest way, and not that which by long experimentation and delicate manipulation may be made to answer.

There are certain definite ends to be gained in the filling of roots of teeth, the first of which is the proper sealing of the foramen, and the thorough occupation of every portion of the vacant canal. It has been urged that if the apex be completely stopped, it matters little whether or not the rest of the root cavity be filled. To our apprehension this is an error. If vacant places be left in the canal, there may be an infiltration into them of matter which, undergoing putrefaction, may give rise to dentinal disturbances that shall hazard the preservation of the tooth. If a canal with an open foramen be not filled at all, we know that the periodical filling up of the vacant space and the subsequent degeneration of the contents, may cause a fresh outbreak of an abscess that nature had once entirely healed. This infiltration will depend in a degree upon the loose, or comparatively dense structure of the tooth itself. The filling of an ordinary root is prophylactic, and not remedial. The cavity once cleaned and made aseptic, and the sinus or abscess thoroughly evacuated, the disease is in all ordinary cases cured. But that the territory may remain in a healthy condition it is necessary that a fresh cause for an outbreak be not admitted, and the proper filling of the root is intended to secure this result. Nerve canals should then be filled with a material that can be made to conform to all the sinuities and inequalities, the ramifications and bulbous chambers of the once living pulp.

But a filling material may fulfill all these requirements and yet be lacking in other essential qualities. It should be of an indestructible material, or it may itself, by its decomposition, contribute toward the very result which we would avoid. It need not be of an antiseptic character, because if the root and contiguous tissue be in a healthy condition antiseptics will only prove irritative. If there be no septic matter that requires to be neutralized, what necessity is there for an antiseptic? If the root be not aseptic, it should not be filled.

Every artificial root filling is a foreign substance that the tissues must be forced to tolerate. That which is of the blandest charac-

ter and the least irritative will be the most likely to prove successful in doubtful cases. That which is the most foreign in its characteristics to the tissues which it is to inhabit, will be the least apt to be tolerated by teeth that are inclined to inflammatory action, and it is this very class of problematical cases that should be most steadily kept in mind. The teeth or the organizations that will accommodate themselves to almost any foreign intrusions, need not give us anxiety.

A root filling should consist of some simple substance, or if it be a compound it should be a very stable one. It is better that it be amorphous, unorganized, non-crystallizable.

If a substance made up of divers materials, that under provocation may lose their affinities for each other, be introduced into a root canal, there is danger that decomposition may take place, and in the course of the long years during which it is expected to exist under circumstances quite unfavorable to its integrity, it may fail, and the tooth be lost.

It should be of such a character and consistency that, without undue irritation, it may seal up the open ends of the dentinal tubules, and so prevent degeneration of the dentinal structure, discoloration, and putrefaction of the living matter of the tooth.

What material most nearly answers all these demands? Not a metallic one, for that is objectionable on every one of the grounds advanced, unless it be that of imperishability. Gold is practically indestructible, but is objectionable in every other way. If a combination of metals, or an amalgam be employed, it has not even the advantage of being a simple substance.

All metals are conductors of heat, and therefore liable to cause disturbances through thermal changes. They are difficult of manipulation; they are essentially foreign and unaccommodating to tooth tissues; they cannot be made to follow up tortuosities of crooked canals, or be inserted in flattened fissures, and they will not seal up the ends of the dental tubuli. In our search for the ideal filling, they must therefore be excluded.

The oxy-chlorides answer some of the conditions very well, but the usual excess of the chloride is an irritant, and therefore

undesirable. It is an antiseptic, and that may recommend it to the slovenly operator (we do not mean that all dentists who use it are slovens), but we have already shown that antiseptics are undesirable. Besides, it is difficult of manipulation, because in many cases it will set and clog the canal before it is possible to get the most minute ramifications filled. There is also a possibility of its final decomposition.

The oxy-phosphates are liable to the same objection, except that they are less irritable.

Some form of the natural hydro-carbon gums instinctively suggests itself in the consideration of the subject from our present standpoint. Resinous gums have been used, but they do not answer all the ends demanded as well as those which are more inert. Of them all probably gutta-percha presents the fewest objectionable features, and to our mind comes the nearest to being the ideal filling, of anything that has been proposed. We have used it almost exclusively for some years, and with constantly increasing satisfaction. Perhaps such instances have occurred, but we certainly cannot now call to mind a case in which it became necessary to extract a tooth, through any kind of a failure of the root filling. So far as we know, its use, as it is now commonly employed, was first suggested by Dr. H. J. McKellops, of St. Louis, and to his persistent earnestness in demonstrating its excellencies the profession is deeply indebted.

The manner of its employment is very simple. Common yellow gutta-percha is dissolved in chloroform until a cream-like consistency is obtained. The Donaldson spring temper nerve broaches are the best instruments for its introduction. The nerve canal being entirely prepared for filling, the rubber dam is put in place, and with one of the broaches dipped in it, the solution is gradually pumped to the very apex of the root. As the chloroform evaporates more of the solution is worked up. The appearance of the broach will, to the experienced eye, give a very clear idea of when the end is reached. A few fibers of cotton may finally be wound about the broach, and this used as a piston to force the solution into every crevice. The patient will usually let the operator know when the

foramen is reached. If a little is forced through the apex it will do no harm, further than to cause a little temporary inflammation. The absorbents will finally take care of it. We have probably caused its extrusion hundreds of times, but have yet to see the first case in which the salvation of the tooth was seriously endangered.

The cavity of decay should be temporarily stopped with cotton dipped in the solution, and the patient dismissed for a day or two, or until the chloroform shall have entirely evaporated, when the gutta-percha may be finally condensed in the mouth of the canals, and the tooth cavity filled. It is very seldom necessary to ream out canals before filling them, when this material is employed.

TOOTHACHE REMEDY.

"It is claimed that a mild galvanic current, generated by placing a piece of silver (any small silver coin will do) on one side of the gum adjacent to an aching tooth, and a piece of zinc on the other side, and bringing the edges into contact, will immediately stop the pain."—*Medical Exchange*.

The code of Medical Ethics pointedly forbids the recommending or employing, upon the part of reputable physicians, of specific remedies and gimcrack appliances. How is it, then, that we so constantly meet with such silly, unprofessional recommendations as this in medical journals, whose editors would be seriously offended if we accused them of that of which they are really guilty—the most offensive quackery? Is it that they are so culpably ignorant of the plainest principles of dental medicine?

BOGUS DIPLOMAS.

England is being flooded with fraudulent diplomas, purporting to be issued by "The Wilmington, Del., Dental College." Of course there is no such institution. How long, O Lord! how long shall American dentistry rest under the opprobrium and shame of seeing spurious diplomas hawked about Europe, while we at home are powerless to prevent it?

OUR BOOK TABLE.

SHAKESPEARE AS A PHYSICIAN: *Comprising every word which in any way relates to Medicine, Surgery or Obstetrics, found in the Complete Works of that Writer, with Criticisms and Comparisons of the same with the Medical Thoughts of To-day:* by J. PORTMAN CHESNEY, M. D. St. Louis: J. H. Chambers & Co., Publishers. 1884. Octavo, pp. 226.

Shakespeare has often been spoken of as "the myriad-minded bard." Members of all the liberal professions find in his works indications that this wonderful man possessed a knowledge, more or less complete, of intricate professional matters, that none but he who had made a special study of, could possess. But his plays are especially rich in medical references, and show that he must have been an attentive student of medical lore. Nor were his the mere generalizations of one of the dilettanti. In all the various departments of medicine he seemed to be fully abreast of the professional knowledge of the time in which he lived. How extensive and how technical some of this was, the ordinary reader of his works does not readily appreciate. It is only when the whole is collated, and the extracts intelligently compared, as in the book under notice, that the professional mind becomes fully impressed with his real greatness. Every student of the great poet, especially every medical man, would do well to examine this work, for it is an epitome of the medical knowledge of the time.

VULCANITE AND CELLULOID: *Instruction in Their Practical Working for Dental Purposes:* by S. ELDRED GILBERT, D. D. S. Philadelphia: The S. S. White Dental Manufacturing Co. 1884.

This is a manual of plain directions in the manipulation of the two bases for artificial teeth, now most extensively used. All the most approved methods, from the taking of the impression to the insertion of the finished piece, are detailed. There is no attempt to pad the book into the proportions of a large volume by the introduction of fanciful methods, or by intricate theoretical speculations concerning the philosophy of each step, but all is plain, practical, and concise. For the purpose for which it is intended, the instruction of students and young practitioners, we know of nothing better.

THE TEETH, THEIR FORMATION, DISEASES AND TREATMENT: *A Popular and Scientific Guide for the General Public*; by THOMAS GADDES, L. D. S., ENG. AND EDIN. London: David Bogue, Publisher. Illustrated.

Any work from the pen of the accomplished editor of "The Dental Record" will be read with interest by every intelligent dentist. The manual under notice was not specially written for professional eyes, yet there is not a professional man who might not study it with profit, while for the layman it contains a mass of information that should enable him to thoroughly comprehend the growth and ordinary diseases of the dental organs. If every physician would master its contents, we should not so often observe the indications of ignorance of these organs that are exhibited by men from whom one might expect better things.

MINUTES OF THE NINETEENTH ANNUAL MEETING OF THE ILLINOIS STATE DENTAL SOCIETY, 1883.

From the late Secretary, but present President of this Society, Dr. Edmund Noyes, we have received the above very handsome volume.

The Illinois State Dental Society is largely made up of men who are widely known in the profession, and the annual report of their proceedings is looked for with constantly increasing interest. The minutes of the meeting for 1883 are in no respect inferior to those of any previous year. In some respects the volume is a great improvement upon its predecessors. The papers are excellent, and some of the illustrations are exquisite. Such a volume can only be the result of great labor and thorough fitness for the onerous task of the committee on publication.

THE NEW YORK MEDICAL JOURNAL.—The publication of the monthly journal known as the "Proceedings of the Medical Society of Kings" has been discontinued. Henceforth the transactions of that Society will be regularly published in *The New York Medical Journal*, which, by the way, is the very best medical weekly published in New York. Any of our readers who desire to remain thoroughly conversant with all branches of medical science, and who wish a journal that is at all times entirely reliable and trust-

worthy, should send in their names to D. Appleton & Co., its publishers. There is not a practicing dentist who would not be directly benefited to the extent of five times its subscription price, if he would attentively read it.

TRANSACTIONS OF THE AMERICAN DENTAL ASSOCIATION. *Twenty-third Annual Session, held at Niagara Falls, Aug., 1883.* Philadelphia: The S. S. White Dental Manufacturing. Co.

This volume is extremely late in making its appearance, and as a whole it is of much less value than most of its predecessors. Only four formal papers were presented, and of these but two were of any special interest, while the discussions at no time were worthy the Society or the occasion. The representative American Dental Society must do better than this if it is to retain a respectable position. The publishers have done their work well, and it is a pity that they had not better materials at their command.

ZAHNARZTLICHER ALMANACH, *for the years 1877-'78-'79-'80-'81.* Edited by ADOLPH PETERMANN, D. D. S., Royal Prussian Approbated Dentist; Dentist to the Royal Family of Hohenzollern; Honorary member of the Free German Hochstifts; Honorary member of the American Dental Association, etc., etc.

This is an alphabetical list of the names of approbated dentists practicing in the German Empire, and in Austria, Hungary, etc., with the names of acknowledged dental societies, journals, etc., revised from year to year. A very convenient and valuable hand-book of reference.

NOTES ON THE OPIUM HABIT; by ASA P. MEYLERT, M. D. New York: G. P. Putnam's Sons.

It is a question whether the abuse of opium be not a greater evil than that of alcohol. At any rate, it is the duty of the physician to thoroughly comprehend the subject, and a perusal of this excellent address will do much toward that end.

THE ATLANTA MEDICAL AND SURGICAL JOURNAL.—This old southern favorite commences a new series with its March number, and in its new dress and cover presents a very handsome appearance. It will scarcely change the verdict of the world, however, when it

again claims for Dr. Crawford W. Long, of Georgia, whose portrait it places prominently upon its title page, the original discovery of Anæsthesia. That question was long ago settled to the satisfaction of most people, and the credit given where it belongs, to a dentist. Even the ability of Dr. Sims, whose sympathy not unnaturally was enlisted through a pardonable sectional pride, was not sufficient to obtain a reversal of the decision.

The following books and pamphlets have also been received :

A Memorial Meeting Relative to the Death of THOS. L. BUCKINGHAM; under the auspices of the Dental Societies of Philadelphia, with an excellent portrait of the lamented Professor.

Iodoform in Dental Surgery. By C. F. W. Bodecker, D. D. S. New York.

Closure of the Jaws and Removal of a Tumor. By J. J. R. Patrick, Belleville, Ill.

A Consideration of Temperament in Relation to the Teeth. By James W. White, M. D., D. D. S., Philadelphia.

The Bacteria. By Charles S. Boynton, M. D., Brandon, Vermont.

Decay and Preservation of the Teeth. By Dr. J. E. Low, Chicago, Illinois.

Removal of the Ovaries and Fallopian Tubes for Chronic Ovaritis, Ovarian Dysmenorrhœa, Neuralgia, etc. By Thomas H. Hawkins, M. D., Denver, Col.

Hysterical Convulsions (Reflex); Perineorrhaphy and Tracheorrhaphy. By Thomas H. Hawkins, M. D., Denver, Col.

Peroxide of Hydrogen in Suppurative Conjunctivitis and Mastoid Abscesses. By A. E. Prince, M. D., Jacksonville, Ill.

Aneurism of the Femoral Artery, and A Knife Wound of the Intestines. By W. O. Roberts, M. D., Louisville, Ky.

Verein der Zahnärzte in Rheinland und Westfalen. Sitzungen am 14 und 15 Oct., 1883, zu Coln.

Current News and Opinion.

"TOO BUSY."

The "Busy Practitioner" humbug is handled by *Gaillard's Medical Monthly Journal* in the outspoken manner characteristic of its editor: "The most widespread and at the same time the most transparent adulation is that offered by so many of the smaller journals of the profession, in connection with the subject of the 'busy practitioner' and 'long-winded articles.' As to the 'busy practitioners' not having time to read 'long-winded articles,' such a statement is manifest buncombe and silly flattery, offered to the foolish among the profession by such journals as have not the space in which to offer, or ability with which to appreciate, carefully elaborated papers. There is no physician who is too busy to read good papers. Indeed, if he is very busy he is so because he has been a careful student of such literature. It is only to the true men of the profession that reference is here made, and these men, if busy, are busy, not because of having read miscellaneous paragraphs and foolish formulas, cut from medical briefs and almanacs, but because of their study of the best papers of the best men. The reader who turns from the paper of a writer because it is long is on the high and brief road to idleness, worthlessness and ruin. He has mistaken his vocation, and the sooner he gives it up the better it will be, not only for himself but his patients, and above all, his brethren. He is already a drone in the hive. When one reads, as he does every day in the smaller journals, the statement made to the average practitioner throughout the United States, the doctors of eight or ten patients daily, and many of them even less, that they are too busy to read long articles, but must read the little paragraphs (in such periodicals) as to what is 'good for' something, what is he to do but smile? But if he has the misfortune to be an editor, there is one other thing he can do, must do—it is to expose the silly fraud herein mentioned, and to help men see the truth."—*Weekly Medical Review*.

The above extract from the medical press is quite as applicable to dentists. Who are the practitioners that are "too busy" to read their professional journals? Almost invariably obscure men, cheap dentists, who vainly desire to impress others with the magnitude of their practice. The really busy men are those who realize that an acquaintance with professional literature is a necessity; who have built up a remunerative business through their intelligence and acquaintance with the latest methods, obtained only by a careful study of the journals. Go into any city or town and inquire who

has the largest practice, and it will invariably be found that the fortunate man is a subscriber to and a reader of all the best dental journals. It is only the pretenders, the make-believes, the *putterers*, and the Cheap Johns, who are "too busy" for study.

THE THERAPEUTIC APPLICATION OF NITROUS OXIDE GAS.

From a series of experiments made in Prof. Botkin's laboratory in St. Petersburg, Dr. S. Klikowitsch (Virchows Archives xliv, 2), draws the following conclusions:

1. Nitrous oxide gas is incapable of supporting respiration in animals and plants, and, like other indifferent gases, leads to death from asphyxia. The asphyxia produced by this gas, however, presents points of contrast to the asphyxia produced by other means.

2. Nitrous oxide gas produces no chemical or morphological changes in the blood of animals, but is dissolved in it and again eliminated, according to physical laws, without apparently being broken up into nitrogen and oxygen.

3. Anæsthesia with laughing gas is so closely associated with insufficient oxidation of the blood, that it cannot be regarded as absolutely without danger, especially in diseases of the heart, lungs, or blood-vessels.

4. The association of laughing gas with twenty per cent. of oxygen completely removes the possibility of asphyxia, and produces a number of results capable of therapeutic application.

5. Under the influence of the mixture of laughing gas and twenty per cent. of oxygen, in the majority of healthy subjects, the heart's pulsations are increased, the pulse-wave diminished, and the respiratory movements decreased in number and increased in depth; these effects pass off in from three to five minutes.

6. In six cases of weak heart action, the above gaseous mixture produced no unfavorable results; on the other hand, the pulse was decreased in frequency and increased in strength. These effects lasted from one to two hours.

7. In cases of disturbed respiratory innervation the mixture of laughing gas and oxygen regulated the respiratory rhythm and

rapidly removed the subjective and objective signs of insufficient oxidation of the blood.

8. This gaseous mixture acts as a transient anæsthetic, and in angina pectoris causes a rapid removal of suffering.

9. It is preferable to chloroform as an anæsthetic in labor.

10. Vomiting and cough of reflex origin are arrested by a few inhalations of this mixture of gases.—*Phil. Med. Times.*

ILLINOIS STATE DENTAL SOCIETY.

The twentieth annual meeting will be held in the Senate Chamber, Springfield, commencing Tuesday, May 13th, and continuing four days.

SUBJECTS AND ESSAYISTS.

- I.—Exposed Dental Pulp and their Treatment. S. F. Duncan, Wilmington.
Discussion opened by J. N. Crouse, Chicago.
- II.—Reflex Pain. K. C. Moody, Mendota.
Discussion opened by T. L. Gilmer, Quincy.
- III.—Origin of the Defective Tooth Structure, Known as Pitted, Furrowed, or Cribiform Enamel. W. H. Eames, St. Louis, Mo.
Discussion opened by L. C. Ingersoll, Keokuk.
- IV.—Inflammation. Homer Judd, Alton.
Discussion opened by W. B. Woodward, Peoria.
- V.—Chemistry. Wm. H. Taggart, Freeport.
Discussion opened by E. S. Talbot, Chicago.
- VI.—Dental Education, past, present and future. A. H. Fuller, St. Louis, Mo.
Discussion opened by Geo. H. Cushing, Chicago.
- VII.—Dental-Embryonal Histology. Will X. Sudduth, Bloomington.
Discussion opened by A. W. Harlan, Chicago.
- VIII.—Some Applications of Electrolysis in Dentistry. W. B. Ames, Chicago.
Discussion opened by T. W. Brophy, Chicago.
- IX.—Irregularities in Human Teeth—Treatment and Cause.
J. J. R. Patrick, Belleville.
Discussion opened by W. N. Morrison, St. Louis.
- X.—Life as a Force. G. V. Black, Jacksonville.
Discussion opened by J. Taft, Cincinnati.
- XI.—Illinois State Dental Society—What has it Accomplished?
C. R. E. Koch, Chicago.
Discussion opened by C. A. Kitchen, Rockford.

THURSDAY MORNING.—CLINICAL OPERATORS.

- 1.—Edgar D. Swain, Chicago. (Gold Crown.)
 - 2.—H. H. Townsend, Pontiac. (Root Filling.)
 - 3.—W. N. Conrad, St. Louis. (Porcelain Crown.)
 - 4.—E. Honsinger, Chicago. (Filling with Crystal Gold.)
 - 5.—C. F. Matteson, Chicago. (Gold Filling.)
 - 6.—W. T. Magill, Rock Island. (Gold Filling)
 - 7.—J. A. Swasey, Chicago. (Filling with Gold and Tin.)
 - 8.—H. J. McKellops, St. Louis. (Gold Filling, Using Bonwill's Engine Plugger.)
 - 9.—J. G. Reid. (Filling Roots with Gutta Percha.)
 - 10.—S. M. Sturgis, Quincy. (Gold Plate, with Rubber Attachment.)
- EDMUND NOYES, Chicago, President.
- J. W. WASSALL, Chicago, Secretary.

KANSAS STATE DENTAL SOCIETY

The thirteenth annual meeting of the Kansas State Dental Association will be held at Hiawatha, Kansas, commencing on Tuesday, May 6th. This meeting is held at the same time and place as the annual meeting of the Nebraska State Association, in accordance with the unanimous desire of the two Associations for a joint meeting.

Essays will be read by members of the Kansas Association, as follows :

The Treatment of Dental Diseases in Childhood and Youth,

DR. A. H. THOMPSON, Topeka.

Gold and Aluminum vs. Rubber for Artificial Dentures,

DR. L. M. MATTHEWS, Fort Scott.

Treatment of Alveolar Abscess and Root Filling,

DR. W. H. SHULZE, Atchison.

Prevention of Decay, DR. W. M. SHIRLEY, Hiawatha.

Tobacco, DR. J. A. YOUNG, Emporia.

Dental Students, DR. L. P. MEREDITH, Abilene.

Exposed Nerves, DR. J. D. PATTERSON, Kansas City.

Arrangements have been made for a proper division of the time, and for joint discussion of all the scientific and literary programme of both Associations.

J. D. PATTERSON, Secretary.

Kansas City, Mo.

A. M. CALLAHAN, Topeka, President.

DENTAL MEETINGS FOR MAY.

The following societies hold meetings during the month of May :

Am. Med. Association—First Tuesday, Washington, D. C.

California State—Third Tuesday, San Francisco.

Connecticut State—Third Tuesday, at Hartford.

Georgia State—Second Tuesday, at Atlanta.

Illinois State—Second Tuesday, at Decatur.

Iowa State—First Tuesday, at Council Bluff.

Kansas State—First Tuesday, }
Nebraska State—First Tuesday, } Hiawatha, Kan., in joint session.

Minnesota State—Fourth Tuesday, at Winona.

South Carolina State—First Tuesday at Cheraw.

New York State—Second Wednesday, at Albany.

Mad River Valley—Third Tuesday, at Dayton, Ohio.

Southern—First Tuesday, at Lexington, Kentucky.

Northern Ohio—Second Tuesday, at Cleveland, O.

Odontographic—(Penn.)—First Wednesday, at Philadelphia.

Odontological—(N. Y.)—Third Tuesday, at New York.

First District—(N. Y.)—First Tuesday, at New York.

Sixth District—(N. Y.)—First Tuesday, at Binghamton.

DENTAL SOCIETY OF THE STATE OF NEW YORK.

The Dental Society of the State of New York will hold its sixteenth annual meeting at Albany, Wednesday and Thursday, May 14 and 15, 1884.

PROGRAMME.

| | | | | |
|---|---|---|---|---|
| President's Address, | . | . | . | L. S. Straw, Newburgh. |
| Histology (to be Illustrated by Diagrams, etc.), | | | | Frank Abbott, New York. |
| The Influence of Antiseptics, Filling Materials, etc., upon the Fungi of Dental | | | | |
| Caries (to be read by W. C. Barrett), | | | | W. D. Miller, Berlin. |
| That Will Do, | . | . | . | J. G. Ambler, New York. |
| The Past, Present, and Future of Dentistry, | | | | E. Parmly Brown, Flushing. |
| Preparation of the Mouth for Artificial Teeth, | | | | W. H. Atkinson, New York. |
| On the Transposition of Certain Functions of the Teeth, | | | | |
| Anatomical Reasons for Dento-Alveolar Abscess of the Hard-Palate, | | | | |
| | | | | J. Edw. Line, Rochester. |
| Incidents of Office Practice, | . | | | Members and Privileged Visitors. |
| | | | | J. EDW. LINE, D. D. S., Rochester, N. Y., |
| | | | | Secretary. |

PERPETUAL INJUNCTION.

In the U. S. Circuit Court in Maryland, it was, on the 10th of March, 1884, adjudged and decreed that a perpetual injunction be issued against Louis E. Wetter, and eighteen others, restraining them from imitating the labels of the Rumford Chemical Works, manufacturers of Horsford's Baking Powder, and also from using their old bottles.

The defendants were required to bring into court all fraudulent labels, and all imitation powder, for destruction.

It was decreed that the Rumford Chemical Works be entitled to receive the profits which have been diverted from it by reason of the infringement, and the defendants were ordered to pay all costs.

Thus is another victory scored for the Rumford Chemical Works, who, not long since, caused several parties to be heavily fined for violating the injunction of the Supreme Court, restraining all persons from offering for sale "Acid Phosphate" (so called), in any package which shall be a substantial or colorable imitation of Horsford's Acid Phosphate.

AMERICAN MEDICAL ASSOCIATION.

President—Dr. Austin Flint, Sen., New York.

Secretary—Dr. Wm. B. Atkinson, Philadelphia.

SECTION OF ORAL AND DENTAL SURGERY.

Chairman—Dr. T. W. Brophy, Chicago.

Secretary—Dr. J. S. Marshall, Chicago.

Meets at Washington, D. C., Tuesday, Wednesday and Thursday, May 6th, 7th and 8th, 1884.

A CASE OF ŒSOPHAGOTOMY.

In the April number of *The American Journal of the Medical Sciences*, Dr. Louis A. La Garde reports a successful case of this rare operation (the opening of the œsophagus), for the dislodgment of a plate of artificial teeth, and he shows that existing statistics do not support the view of Sir William Fergusson and Nelaton, that œsophagotomy is a dangerous operation.

MICHIGAN DENTAL ASSOCIATION.

A condensed report of the annual meeting at Detroit is crowded out of this number. The officers elected for the ensuing year are :

President—Dr. J. Lathrop, Detroit.

First Vice President—Dr. F. W. Clawson, Detroit.

Second Vice President—Dr. E. C. Moore, Detroit.

Secretary—Dr. J. B. McGregor, Port Huron.

Treasurer—Dr. H. K. Lathrop, Detroit.

A resolution was passed that the calling of a mixture of nitrous oxide gas and the vapor of chloroform or ether, "Vitalized Air," is a misnomer, and is calculated to deceive and mislead the public, and any member of the Association so advertising shall be deemed guilty of an infraction of the Code of Ethics.

SIXTH DISTRICT DENTAL SOCIETY OF NEW YORK.

The Sixth District Dental Society will hold its fifteenth annual meeting in the Common Council Rooms at Binghamton, on Tuesday, May 6th, 1884, at 2 o'clock P. M. The president, Dr. M. D. Jewell, of Richfield Springs, will deliver the annual address. The following papers will be read :

Combination of Gold and Amalgam; Dr. F. B. Darby, of Elmira.
Iodoform; Dr. E. D. Downs, of Owego.

Volunteer essays are invited. All dentists residing in the district are cordially invited to be present.

E. D. DOWNS, Secretary.

CICERO ON DENTISTRY.

Editor Christian Advocate :

Below find a quotation from Cicero on "The Laws." The "Twelve tables" from which it seems to be taken, were enacted about B. C. 450 : "And since in the law there was this clause, that gold should not be buried with the dead, how humane is the exception made by another law, *that if the teeth of the deceased were fastened with gold*, the corpse might be buried or burned without taking it away, and no wrong be done."—*The Microscope.*

PERSONAL.

Our associate, Dr. C. F. W. Bodecker, will sail about May 20th for Europe, to be gone during the summer. He has earned a vacation by his long-continued and exhaustive labor, but if any one thinks that he goes abroad for a summer's idleness, he does not know Dr. Bodecker. The readers of the *INDEPENDENT PRACTITIONER* will benefit by the Doctor's study in Europe, for he will make it a special business to pick up anything that may interest them. He has the best wishes of his associates and many professional friends for a pleasant and profitable trip.

Dr. John D. Maynard has gone to Paris, France, where he will be associated with Dr. John W. Crane, at 41 Boulevard des Capucines.

SECOND DISTRICT DENTAL SOCIETY.

At the annual meeting of the Second District Dental Society, held on March 11th, at the office of Dr. A. H. Brockway, Brooklyn, the following officers were elected :

President, J. H. Holly, Warwick ; Vice-President, E. P. Brown, Flushing ; Recording Secretary, A. N. Roussel, Brooklyn ; Corresponding Secretary, E. T. Van Woert, Brooklyn ; Treasurer, L. G. Wilder, Brooklyn ; Librarian, F. W. Dolbeare, Brooklyn ; Delegates to the State Society, Drs. E. H. Dickey and Mills ; Censors, A. H. Brockway, Wm. Jarvie, Jr., O. E. Hill, H. G. Mirick, C. F. Allen.

A. N. ROUSSEL, D. D. S., Recording Secretary.

MAD RIVER VALLEY DENTAL SOCIETY.

The Mad River Valley Dental Society will hold its annual meeting in the parlor of the Phillips House, Dayton, Tuesday, May 20, 1884. Sessions begin at 10 o'clock, A. M., 2 and 7 P. M.

SUBJECTS FOR DISCUSSION.

1. The Value of Pulpless Teeth and Roots.
2. Inflammation.
3. Alveolar Abscess.
4. The Promotion of Osseous Development.
5. Facial Neuralgia.

President, A. Berry ; Vice-President, C. M. Wright ; Secretary and Treasurer, W. H. Sillito.

NORTHERN OHIO DENTAL ASSOCIATION.

The twenty-fifth annual meeting will be held in Cleveland, Tuesday and Wednesday, May 13th and 14th, 1884, commencing at 10, A. M. Tuesday. Meeting to be held at Board of Education Rooms public library. A cordial invitation is extended to all the profession.

SUBJECTS FOR DISCUSSION.

1. The Causes of Failure in Dental Operations.
2. Materials for Filling Teeth, Their Relative Value, and How to Use Them.
3. Prosthetic Dentistry, Including Artificial Crowns.
4. Subjects proposed by members, and quiz.

GALE FRENCH, President.

H. F. HARVEY, Cor. Sec.

SOUTHERN DENTAL ASSOCIATION.

The sixteenth annual session will be held in Lexington, Ky., commencing May 6th and continuing three days. Reduction of fares upon the railroads, also special rates at the hotels, have been secured.

The Chairman of the Committee of Arrangements, Dr. A. O. Rawls of Lexington, proposes that the members and visitors shall be entertained in "Old Kentucky style," and the meeting will without doubt be a memorable one.

President, H. J. McKellops, St. Louis, Mo.

Corresponding Secretary—J. P. Holmes, Macon, Ga.

Rec. Sec.—W. H. Hoffman, Gastonia, N. C.

CONNECTICUT VALLEY DENTAL SOCIETY.

The semi-annual meeting of the Connecticut Valley Dental Society will be held at the Sea View House, Savin Rock, New Haven, Connecticut, Wednesday and Thursday, June 18 and 19, 1884.

W. F. ANDREWS, Secretary.

Askings and Answers.

So many questions upon professional subjects have been at different times sent to us, that it has been deemed advisable to open a special department for their consideration. We shall be glad if those desiring information will forward any pertinent questions, and if those possessed of the desired knowledge will send concise answers. In the absence of volunteer replies, we shall refer any important subjects to such of our associates or friends as are possessed of special knowledge of the matter enquired about.

If you will kindly give me room in your valuable Journal, I would like to ask a question of some of your subscribers who are better posted than I am.

Several times I have removed old leaky amalgam fillings and found a mass of black, pasty matter underneath. This I have carefully washed out, cut away the decay, cleansed and disinfected the root canals as thoroughly as possible, and then refilled roots and cavity as nicely as I was able—and then after all the care and labor bestowed upon them, have had my patients return next day suffering severe pain, and the teeth so treated elongated and sore to the touch! Now why should these teeth which the patients declared never gave them trouble before, even when loaded with decomposed matter, give such trouble when cleaned and refilled?

J. L. D.

Will somebody please inform me in the next number of the *INDEPENDENT PRACTITIONER*, what difference (if any) it makes, what sort of filling is employed for closing up pulp canals?

A. B. L., Kansas.

Answer.—See editorial in this number. Ed.

When excavating large cavities in teeth preparatory to filling, we sometimes find the tooth-pulp nearly exposed, and protected only by a thin layer of dentine, much discolored and not very dense. Now, is it better in these cases to cut out all this discolored portion and risk exposing the tooth-pulp, or leave it and fill over it?

B—.

I have seen several cases in which dental periostitis, which had resisted the usual local treatment, was promptly cured (so the patients said) by homeopathic medicines. Can anybody give the particulars of such treatment?

J. S.

Calcium Sulphide is used in general medicine as a preventive and cure for periostitis. Has it any record in dental practice?

D.

Answer.—Dr. Geo. B. Snow not long since read a paper before the Buffalo Dental Association, in which he strongly recommended this remedy in case of acute alveolar abscess, and recited instances of its successful employment. The paper may be found in the April number of *The Dental Advertiser*. Ed.

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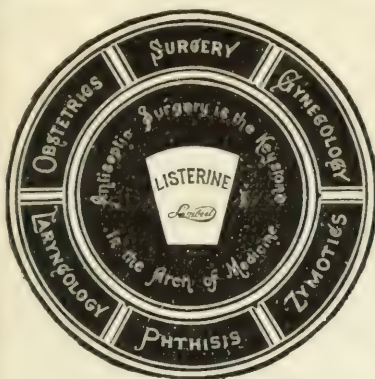
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 A. O. RAWLS, D. D. S., Lexington, Ky.
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To the Dental Profession.

GENTLEMEN :

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

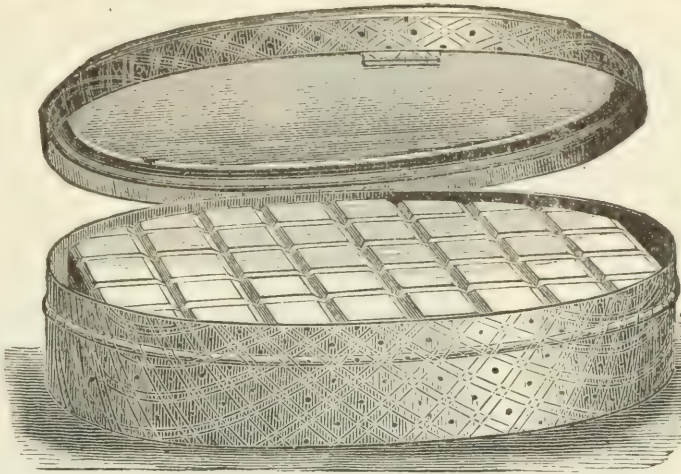
I. W. LYON, D.D.S.,

61 CEDAR ST., NEW YORK.

New York, March 1, 1884.

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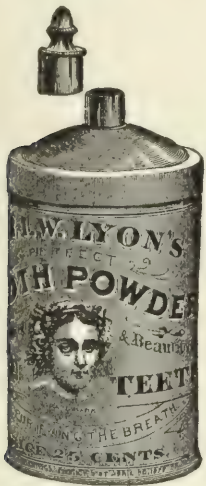


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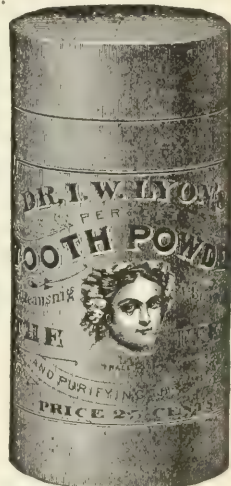
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Heat expands metallic substances. When an alloy has been amalgamated in the palm of the hand the operator will observe that heat is evolved. Now, if this is allowed to depart (said Dr. Wheldon Foster, of Baltimore, in criticism of an essay by us), if this heat is allowed to depart previous to its introduction into the cavity, it will not then contract; for crystallization at low temperature is not a process of contraction. A familiar example is the freezing of water and the consequent bulging and bursting of the containing vessel or pipe.

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| DR. C. S. STOCKTON,.....NEWARK, N. J. | DR. WM. F. DAVENPORT,....." " |

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Very respectfully,

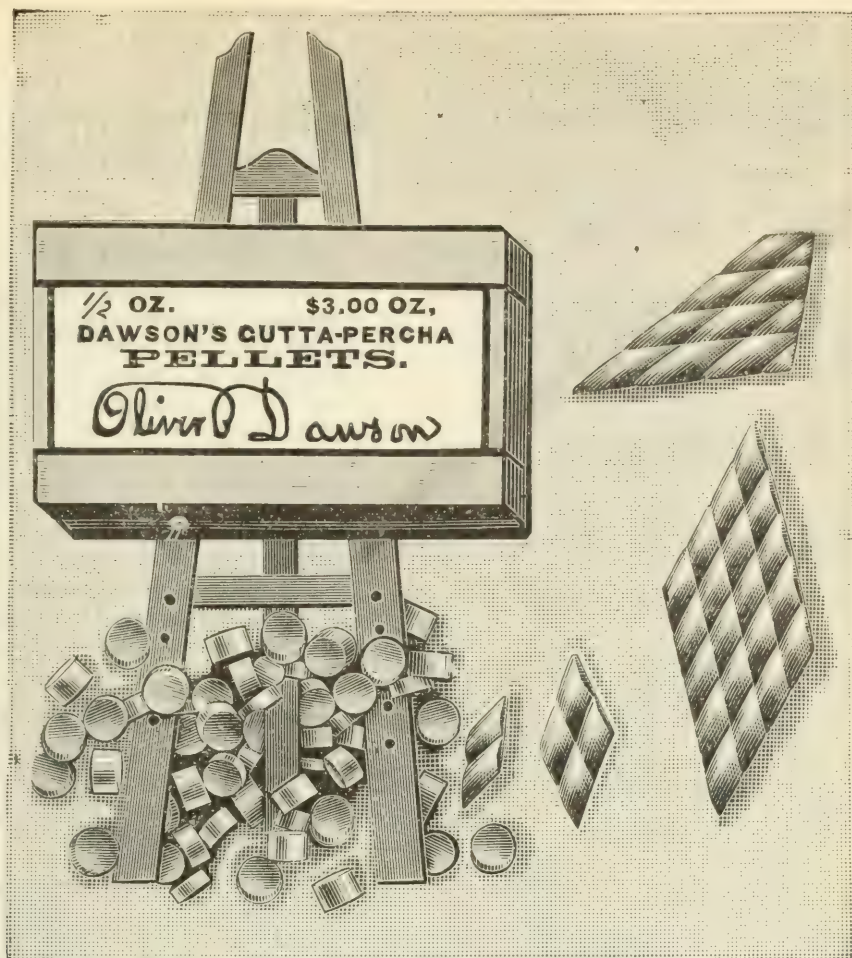
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Original Communications.

FERMENTATION IN THE HUMAN MOUTH.

THE INFLUENCE OF ANTISEPTICS, FILLING MATERIALS, ETC., UPON
THE FUNGI OF DENTAL CARIES.

BY DR. W. D. MILLER, BERLIN, GERMANY.

(Continued from page 233.)

Having established upon an experimental and scientific basis the fact that caries of the teeth is, to a certain extent, the direct result of the action of ferment acid or acids* upon the tissue of the tooth, followed, particularly in the case of the dentine, by the action of the ferment organisms themselves upon the decalcified tissue, it becomes a matter of the first importance to determine, first, by what means we may counteract the action of the acids or prevent their production; second, by what means we may save the already decalcified dentine from complete destruction.

Evidently there are three methods by which the desired end may be partially obtained:

1. By repeated, thorough, systematic cleansing of the oral cavity and the teeth, we may so far reduce the amount of fermentable substances in the mouth and the number of ferment organisms, as to materially diminish the production of acid. This is so self-evident that it needs no further comment.

*The chief work in the production of caries is performed by lactic acid; other acids are only auxiliary factors.

2. By the repeated application of alkaline substances we may, to a certain extent, neutralize the acids before they have acted upon the teeth to any considerable degree.

3. By a proper and intelligent use of antiseptics we may destroy the organisms themselves, or at least render them inactive. It is this method which is especially applicable in the second stage of dental caries (*i. e.*, the stage which follows the decalcification), and to which we will here give exclusive attention. We must, however, constantly bear in mind that by whatever method we proceed, a previous thorough cleansing of the teeth is absolutely indispensable. There is no known solution, alkaline or antiseptic, applicable in the human mouth, which will penetrate between the teeth or to the bottom of fissures and cavities, when these are filled with food, in sufficient quantity to have any appreciable effect. Therefore, before all antiseptics or alkaline washes come the toothbrush, toothpick, and floss silk.

In my experiments for determining the action of various antiseptics upon the fungi of tooth caries, it appeared to me that by allowing the antiseptic to act upon the fungi in their natural medium, saliva, I could obtain results of more practical value than by experimenting upon them in artificial solutions, and in pure cultures, neither of which ever occurs in the human mouth. Furthermore, since the fungi can attack the teeth only after a partial decalcification, we have in the first place to demand of an antiseptic, not so much that it destroys the fungi, as that it prevents the production of acid by them.* Consequently, if an acid reaction failed to appear in a solution of saliva and sugar to which a certain antiseptic had been added, as soon as in a like solution to which no antiseptic had been added (control), it was taken as evidence of the activity and value of the antiseptic used. This method could of course be used only with substances having a neutral reaction. The solutions were also subjected to a microscopic examination, to render the evidence doubly sure.

* The production of acid may be taken as synonymous with the development of the fungi, though the failure of the acid reaction to appear after a certain length of time does not necessarily indicate that the fungi have been *devitalized*.

In the following table I have indicated the percentage of each antiseptic experimented upon which must be present in a sweetened-saliva solution, to prevent the appearance of an acid reaction in twenty-four hours, or in case of alkaline or acid antiseptics, to prevent the development of the characteristic fungi in the same time.

For example, if to 100,000 parts of sweetened saliva we add one part of bichloride of mercury, the solution will not be found acid after the lapse of twenty-four hours, even though the control became sour in four or five hours. If we add only one part to 500,000, the acid reaction will appear somewhat later than in the control.

This table is designed to show the comparative strength of the antiseptics most commonly used. The action of the antiseptics having an acid or alkaline reaction upon the fungi, was determined by the use of the microscope alone.

| | PRODUCTION OF ACID (Development of Fungi) | |
|--|--|-----------|
| | PREVENTED. | RETARDED. |
| Bichloride of mercury..... | 1-100,000 | 1-500,000 |
| Nitrate of silver..... | 1-50,000 | 1-100,000 |
| Iodoform..... | 1-5,000 | 1-10,000 |
| Naphthaline..... | 1-4,000 (?) | 1-9,000 |
| Iodine..... | 1-6,000 | 1-15,000 |
| Oil of mustard..... | 1-2,000 | 1-5,000 |
| Permanganate of potas..... | 1-1,000 | 1-2,000 |
| Eucalyptus oil..... | 1-600 | |
| Carbolic acid..... | 1-500 | 1-1,000 |
| Hydrochloric acid..... | 1-500 | 1-1,000 |
| Phenylic acid..... | 1-200 | 1-500 |
| Liquid of Agate Cement..... | 1-250 | |
| Liquid of Excelsior Cement..... | 1-225 | |
| Lactic acid..... | 1-125 | 1-250 |
| Carbonate of sodium..... | 1-100 | 1-200 |
| Salicylic acid (Conc. alcohol sol.)..... | 1-75 | 1-125 |
| Alcohol..... | 1-10 | 1-20 |

The experiments show that bichloride of mercury is about two hundred times as powerful as carbolic acid, and demonstrate very clearly the mistake of substituting weak solutions of this antiseptic

(1-1,000, as I have seen recommended) for concentrated carbolic acid. One one-thousandth is only one-fifth as powerful as pure carbolic acid, which in many cases may be used with impunity. It is consequently useless to attempt to introduce the sublimate solution for the purpose of sterilizing root canals, cavities before filling, etc., unless we may use at least a one-half per cent., if not a one per cent. solution. I see no reason, however, why this may not be done. In a few cases I have used a one per cent. solution for treating root canals, and do not hesitate, particularly with the rubber dam adjusted, to wipe out cavities before filling with a two per cent. solution, and see no possible evil which could result from it. A well-known physiologist in Berlin has told me that he uses a one per cent. solution in his own mouth for aphthæ, and with excellent results. We should not, however, overlook the fact that a one per cent. sublimate solution is only one-fifth as powerful as pure iodoform.

As a mouth wash I have frequently used a one-tenth per cent. (1-1,000) solution myself, and have seen no bad results from it; I would not, however, recommend it to my patients in this strength. It has, besides, for me, an exceedingly disagreeable and lasting taste, which it is difficult to disguise, and produces an immediate increased secretion of saliva and mucus, which is very annoying. A one-fiftieth per cent. solution (1-5,000) may eventually be brought into use; in this concentration it is four times as powerful as a one per cent. solution of carbolic acid. The very high antiseptic power of nitrate of silver is particularly noteworthy. Why may it not be employed in place of the much more dangerous mercuric chloride?

The action of tobacco upon the fungi is worthy of notice. Five grammes of old Virginia plug were boiled fifteen minutes in fifty c. c. of water, the loss by evaporation being constantly replaced; the decoction was then filtered, and a portion added to an equal volume of saliva with sugar. This produced a mixture scarcely stronger than that which many veteran chewers carry around in their mouths all day, and in it the fungi led only a miserable existence.

Much more remarkable, however, was the action of tobacco smoke upon the fungi; the smoke from the first third or last quarter of a

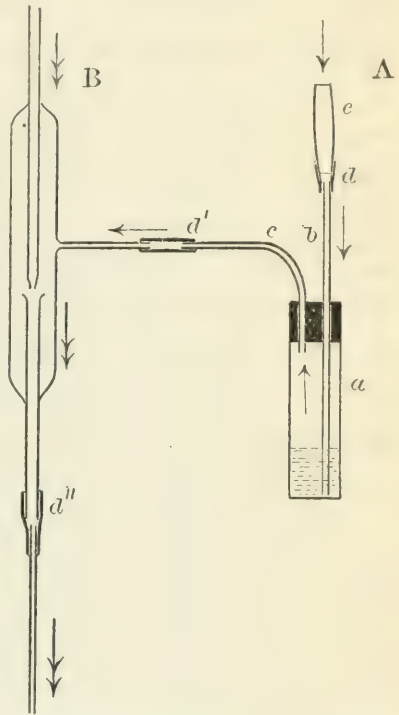
Colorado Claro cigar being found amply sufficient to sterilize ten c. c. of a beef-extract-sugar solution, previously richly infected with caries fungi.

The apparatus used for this experiment (see figure one) explains itself. A current of water passing through the part B in the direction of the ↓ produces a current of air through the part A, in the direction of the ↓ which draws the smoke from a lighted cigar through the solution. The rate at which the cigar smokes may be regulated at will by the cock of the hydrant.

In consideration of the strong antiseptic power of tobacco smoke, we might be inclined to infer that tobacco smokers should never suffer from caries of the teeth; it is evident, however, that there are very many points in the dental arch to which the smoke never penetrates.

In the preparation of cavities for inserting fillings, it is naturally often next to impossible to remove all the carious dentine, and in all such cases it is especially desirable that the filling material itself should possess antiseptic properties, since we, in using such a material, not only destroy those organisms existing in the carious tissue, but the material, if it remains permanently antiseptic, retards the working of the ferment organisms from without, and the appearance of secondary decay. We need, therefore, a material for filling which is not only antiseptic at the time of insertion, but which remains permanently so after being inserted.

(Fig. one.)



a, Glass cylinder with infected solution.

b, c, Glass tubes.

d, d', d'', Rubber tubing.

e, Cigar (Colorado Claro.)

B, Water air-pump.

A current of water passing through B in the direction of the ↓ produces a partial vacuum in the bulb, and consequently a current of air in the direction of the ↓ or through the cigar, which if lighted will smoke at a rate determined by the pressure under which the water is flowing.

I have endeavored to determine the relative antiseptic power of different filling materials (cements, amalgams, etc.), not only at the moment of mixing, but after they were thoroughly dry, after they had lain some hours in sweetened saliva, and after they had been an indefinite time in the human mouth.

A large number of miniature test-tubes (homeopathic pill-tubes) were provided with cotton stoppers, and sterilized. Into each was brought one-half c. c. of beef-extract-sugar solution, previously infected with carious fungi (pure culture). To the first tube was added a small drop of a one per cent. sublimate solution; the second tube was left untouched, and into the third, fourth, fifth, etc., were brought the filling materials whose antiseptic virtues were to be tested; these were in the form of cylinders two m. m. in diameter, and three m. m. long; if old fillings from the mouth were used, pieces were taken having approximately the same size.

These tubes now being placed in the incubator, their contents became cloudy one after the other. In those tubes which contained fillings of but slight antiseptic power, the development of the fungi proceeded rapidly, and the cloudiness soon appeared. If, on the other hand, the filling was strongly antiseptic, the development of the fungi was hindered, and the cloudiness appeared later. The first tube to which the sublimate solution had been added of course remained clear, and by comparing the others with this it was easy to see just when the turbidity began to show itself; the second tube, containing no antiseptic and no filling, served as control, and the space that intervened after the control became turbid till any one of the other tubes became turbid, was a measure of the antiseptic power of the material in that tube.

As the result of a great number of experiments, I have been able to get together the following table:

When the control tube becomes turbid in 5 hours, then:

| | | |
|--|----|--------|
| A tube containing an old oxy-phosphate filling becomes turbid in... | 5 | hours. |
| " " " oxy-chloride " " " " ... | 5 | " |
| " " a gold cylinder becomes turbid in..... | 5 | " |
| " " a Hill's stopping cylinder becomes turbid in.... | 5 | " |
| " " an amalgam cylinder (kept 12 hours in saliva) becomes turbid in..... | 5½ | " |

| | | |
|---|--|------------------------|
| A tube containing an agate cylinder (kept 12 hours in saliva) becomes | | |
| | turbid in..... | 5 $\frac{1}{4}$ hours. |
| " | " an old amalgam filling becomes turbid in | 5 $\frac{3}{16}$ " |
| " | " an amalgam cylinder (mixed dry) becomes turbid in..... | 5 $\frac{2}{8}$ " |
| " | " an amalgam cylinder (mixed wet) becomes turbid in | 5 $\frac{1}{2}$ " |
| " | " an oxy-phosphate cylinder (12 hours in saliva) becomes turbid in..... | 5 $\frac{1}{2}$ " |
| " | " an amalgam cylinder (12 hours old) becomes turbid in..... | 5 $\frac{3}{8}$ " |
| " | " an old filling of tin and gold becomes turbid in.. | 5 $\frac{1}{8}$ " |
| " | " an oxy-phosphate cylinder (12 hours old) becomes turbid in..... | 6 " |
| " | " an agate cylinder (12 hours old) becomes turbid in. | 6 $\frac{1}{4}$ " |
| " | " an iodoform cement cylinder (12 hours in saliva) becomes turbid in..... | 6 $\frac{2}{8}$ " |
| " | " a pyrophosphate cylinder (mixed dry) becomes turbid in..... | 7 $\frac{1}{8}$ " |
| " | " a pyrophosphate cylinder (mixed wet) becomes turbid in..... | 7 $\frac{3}{8}$ " |
| " | " an oxy-chloride cylinder (12 hours old) becomes turbid in..... | 9 " |
| " | " a piece of dentine from a tooth impregnated by a copper amalgam filling becomes turbid in. | 11 " |
| " | " an iodoform cement cylinder (12 hours old) becomes turbid in..... | 12 " |
| " | " an iodoform cement cylinder (fresh) becomes turbid in? | " " |
| " | " a globule of mercury becomes turbid in..... | — " |
| " | " a cylinder of black oxide of mercury becomes turbid in..... | — " |
| " | " a cylinder of any copper amalgam becomes turbid in..... | — " |
| " | " any old copper amalgam filling becomes turbid in — | " " |
| " | " a cylinder of oxy-chloride (fresh) becomes turbid in..... | — " |

The (—) signifies that the solution remained permanently clear.

We see from these results that the only filling at present in use which exerts a continual anti-ferment* action upon the walls of the

* I use the terms anti-ferment and anti-septic interchangeably, though the former is, perhaps, preferable, since we are treating of ferment, and not septic organisms.

tooth and its immediate surroundings, is the old copper amalgam; not only that, but the very substance of the tooth containing such a filling itself becomes antiseptic, a piece of bluish or bluish-green dentine from such a tooth very powerfully retarding the development of the fungi, and, indeed, in two cases completely destroying them. Secondary decay in such a case would be next to impossible, where anything like cleanliness was observed.

This result is well supported by observations which I have had abundant opportunity to make for the last five years, here where this material is so extensively used, and I do not hesitate to say that if our only object is to check the destruction of tissue by caries, there is no material at present in use with which this object may be so surely accomplished as with a good copper amalgam. It is a material, however, which I have never used, though I am not aware of any bad effect produced by it beyond the discoloration of the tooth. Skogsberg's iodoform cement came into my hands too late to complete the experiments with it. It has undoubtedly strong antiseptic properties, which it does not completely lose even when exposed to the saliva, and might no doubt be used to great advantage as a foundation for permanent fillings. Old fillings of tin and gold possess slight antiseptic power, still less (almost zero) old amalgam fillings (not copper). The very inconsiderable power of amalgams to prevent the development of ferment fungi is a source of some surprise, since we have been accustomed to look upon them as very active in this respect. It is probably a mistake to attribute the hardening of dentine under amalgam fillings to the antiseptic action of the amalgam, since, in the first place, it possesses this power to but a slight degree, and in the second place the hardening may take place under fillings of gutta percha equally well. If we dry the cavity but indifferently well, and then choose a piece of gutta percha which we think will about fit the cavity, warm it and stuff it into the cavity, we of course can expect only bad results. If we proceed as follows we will obtain excellent results, as I have seen time and again: Adjust the dam, excavate carefully, especially the margins, wash with a strong antiseptic, dry thoroughly with bibulous paper and then with the hot-air syringe, till the sur-

face of the dentine becomes whitish, paint with a thin solution of copal varnish, dry again with warm air, then put in the gutta percha in small pieces, one after the other, being *sure* that each piece sticks to its place, especially along the margin, just as if you were making a filling of gold. A piece which has once moved in its place must not be allowed to remain, as a leak will be the result. Remove such a filling after two years, and the cavity will often be found in an excellent condition for a gold filling.

The oxy-chlorides when first mixed, are powerfully antiseptic, but soon lose their energy when exposed to the action of saliva.

The oxy-phosphates are very much inferior to the oxy-chlorides in antiseptic power, and should never be used in cavities where there is much soft dentine. This conclusion is borne out by my own experience in practice, and by that of others with whom I have conversed on the subject. Dr. Paetsch first called my attention to the disastrous results of such a practice, and his testimony was confirmed by that of Dr. F. P. Abbott, and others.

It must not be expected that the results given in the above table are absolutely free from error. The experiment is attended with more difficulties than are at first sight apparent; especially does the sterilization of the filling materials themselves involve much time and labor, and the results are not always constant; this was especially the case with iodoform cement. Amalgams and phosphates gave quite constant results. The tests with some of the materials were made over twenty-five times; with others, such as copper amalgams, where there was no doubt as to the result, only a few experiments were made.

Caries of the teeth, except in the later or last stage, is the result of a ferment process, and the organisms found in the deeper parts of decaying dentine, which I have isolated and obtained in pure culture, are ferment organisms. The decomposition of the pulp and contents of the root canal, attended by bad-smelling products, is, on the other hand, a putrefactive process, in which entirely different species of fungi are concerned. Whether or not the results which I have obtained for the fungi of caries would apply equally

well to those putrefactive fungi, is a question which can be settled only by experiment upon pure cultures of the same.

Although I have now, as I think will be granted, established upon a sure basis a fact that caries of the teeth may result directly from the action of acid-producing fungi in the presence of fermentable carbo-hydrates, the conclusion would hardly be justifiable that, by keeping the mouth constantly and perfectly free from all fermentable substances, or by repeated application of antacids or antiseptics to all parts of the teeth, or by all these means together, we could ever banish dental caries from the oral cavity. A most powerful influence, which we do not well understand, is exerted by the nutritive processes in the teeth themselves.

I am assured by men who have grown old in the practice of dentistry, that mouths which have long been under their observation, and which practically have been completely free from caries for years, at once, on account of some sudden change of health, show a general breaking down or crumbling of the teeth, *en masse*, in the space of a few weeks. It has also been my experience that patients who have been dismissed by their dentists in America, with the assurance that according to previous experience their dentures would require no treatment for one or two years, have come to me a few weeks later with teeth looking as though they had not been under the hands of a dentist for years. Some say the ocean voyage spoiled their teeth; others attribute it to a change in the climate, food, health, etc.

At any rate, we have here a cause which lies without the domain of both bacteria and acids (either ferment or otherwise). The lime-salts of the teeth are supposed to form, with the organic matter of the tooth, a definite chemical compound, and it is probably due to this fact that simple salts of lime are so much more readily soluble in weak acids than pulverized tooth-bone, or that the tartar upon the teeth is so much more easily soluble than the teeth themselves; so that when any one rinses his mouth with vinegar, and afterwards finds lime in the vinegar, we know that the lime, in by far the greater part, if, indeed, we may not say altogether, came from the tartar. Now, though there is no positive evidence for the supposi-

tion, it is certainly not altogether improbable that, as a consequence of certain derangements in the nutritive functions of the teeth resulting from a change of health, etc., etc., a dissolution of the affinity between the lime-salts and the organic matter may take place, thus setting free the easily soluble lime-salts, which are then carried away in solution or washed out mechanically.

This is a supposition only, which I bring forward because facts in this case are absolutely wanting. If it should, perchance, contain a trace of truth, then adult and pulpless teeth should be less subject to these *sudden* attacks of caries than young teeth with living pulps.

There still remains much hard work to be done, before the subject of dental caries may be dismissed as having received a final solution *in all its different phases*. There are men enough in the profession, however, who are willing to work, and who do not shrink from the tasks yet to be performed.

DENTAL EDUCATION.

BY B. MERRILL HOPKINSON, D. D. S., BALTIMORE, MD.

Much has been said and written on this most important subject of dental education, and I wish to contribute my mite, hoping that this article, having been brought before the profession, may be productive of some good among the various institutions of dental learning. In the editorial department of a number of the *Southern Dental Journal*, published more than a year ago, an article appeared, the heading of which was: "Some Curiosities." A good comparison between the qualifications of a physician and persons of other occupations, taken from the *Cincinnati Lancet and Clinic*, and written by James E. Reese, M. D., preceded a most illiterate production from a prospective student of medicine to the dean of a certain college, the reply of the dean, however, most unfortunately being withheld. This "curiosity," as a contribution to American literature from the domain of medicine, was followed by a letter written to Dr. W. C. Barrett, editor of the INDEPENDENT PRACTITIONER,

in itself a curiosity equally as great, by a student of dental surgery in attendance upon a dental college. Had these letters come from the pen of the noted perverter of our language, Mr. Josh Billings, they might have induced a smile; but, coming from gentlemen who were soon to be launched out as full-fledged members of a great profession, they caused a sigh instead. The editor of the *Journal*, in commenting upon these illiterate productions, said: "How to correct this deplorable state of affairs is a question of paramount importance. There is certainly one way of not doing it, and that is by publishing such articles and withholding the names of the writers and institutions."

Dr. Sim, of the *Mississippi Valley Medical Monthly*, contributes a short but pithy article, which is quoted by the editor of the *Journal*, and called: "Give the Names."

The substance of the article is that there have been suggestions of fraud and irregularities on the part of the various colleges, published in a number of exchanges, but no special or discriminate charge has ever appeared. "My dear Dr." will appear at the beginning of a long series of charges against some imaginary institution, or, if not imaginary, known only to the author of the article, and ending, "Very respectfully yours!" It is not possible to conceive any benefit likely to be derived from such *sub rosa* exposures, as they do not serve even as warnings to those institutions actually doing wrong. Dr. Sim concludes by saying: "Pass around the names, dates, localities, etc., and let us know who the parties are, and if this cannot be done, we would suggest a let-up on this style of ferreting and exposing fraud."

Indiscriminate charges are of no avail; they are worse than useless, and when printed, never worth the time taken to read them, or the paper they are printed upon.

My object in writing this article is to bring to the notice of the profession certain irregularities practiced by the alma mater of many of the best dentists of the present day, as well as of those who have passed on to their final rest. The Baltimore College of Dental Surgery has been until within a few, a very few years, one of the best institutions of dental education in the world, and, as the

old college is my alma mater, the place where I gathered the few grains of knowledge, which, ripening by experience, have been a blessing and benefit to me, and as I can truthfully say that I love the memories of the time passed within her walls, and revere her one-time eminence and prestige, it is with feelings of deep regret and sorrow that I have placed upon myself the self-imposed task of bringing to the eyes of the profession certain irregularities practiced by the present faculty, in direct opposition to the law as it appears in her charter, and according to the terms of graduation published in the forty-fourth annual catalogue. It is a question that I will not offer to discuss, whether or not a liberal education ought to be the ground-work whereon to build the subsequent knowledge which will prepare a man to practice a profession; let those who are high in office in dental institutions, placed there to impart such knowledge as they may possess to those coming to them for instruction, draw the line between a man with little or no education at all, and one who has had the incalculable benefits of a liberal education. Alas! when is that line ever drawn? are not all received and placed upon the same footing in all dental schools in the country? Will the day ever come when ignoramuses will not be admitted to our schools, which are intended to prepare men to practice so-called learned professions? I hope so. The question of the necessity for a general education before a student begins the study or practice of a profession must be left for higher authorities to decide; I only wish in this article to show that a dental school which once stood at the top, which was once beloved and revered by all good practitioners, has, in the last session, granted her diplomas to gentlemen regardless of her requirements, and I wish to give names, dates, and localities. By reference to the annual catalogue of the Baltimore College of Dental Surgery, which I have before me, for 1883-4, I read the following:

“Each candidate for graduation must present himself for examination before the faculty upon all subjects taught in the college. Prior to such examination he must show specimens of operations upon the natural organs, and present an approved specimen of dental mechanism constructed in the college; also, he must have attended two full courses of lectures in this college. The fol-

lowing, however, will be considered as equivalent to an attendance upon one course of lectures in this college: One course in any reputable dental or medical college prior to matriculation in this college. Five years' dental practice, including regular pupilage, and a satisfactory examination on entering college. The student meeting either of the above requirements will have the privilege of presenting himself as a candidate for graduation at the end of but one course of lectures. * * * * * All students, whether graduates of medicine or dental practitioners, are required to attend regularly upon lectures, demonstrations and clinical duties, and be examined by each member of the faculty. Degrees, *in absentia*, are not granted by this college."

I will now proceed to the statement of a few facts. During the first week of January, 1884, two gentlemen from New Jersey, Messrs. F. C. Barlow and C. A. Meeker, called upon the dean of the Dental Department of the University of Maryland, and desired to know if they could graduate by attending a few days of the session. The dean positively refused to do anything of this sort, at the same time reading the requirements for graduation, etc. Both of these gentlemen had sent in their names before coming to the city, and when they appeared they matriculated and paid their fees. After conversation with the dean they agreed to come on in February and dissect, and return for the session of 1884-5, attend lectures, etc., and present themselves as candidates for graduation. At the close of the month of February they returned to Baltimore, and in accordance with their former proposition they called upon the demonstrator of anatomy of the University and took their tickets, paying for special attention, with the remark to the demonstrator that they had only a few days to stay. In a few days, and after dissecting an upper extremity, these gentlemen vanished from the gaze of the Baltimore public, and lo! on Thursday, March 6, 1884, their names appear among the list of graduates from the Baltimore College of Dental Surgery!

Case No. 2 reads thus: About the 15th of October, 1883, two gentlemen from Massachusetts, Messrs. J. F. Dowsley and F. A. Twitchell, called upon the dean of the Dental Department of the University of Maryland, paid their fees and received their tickets. After a short time they asked the dean whether they would be

credited in the final examinations with those examinations they had passed as juniors in a college in the north, stating that such credit would be allowed them by the authorities of the Baltimore College of Dental Surgery. The dean told them that they would be obliged to go before all the professors of the department, and that they could not be credited with examinations passed in another institution. These two gentlemen disappeared also, and their names can be found among the list of graduates from the Baltimore College of Dental Surgery, on March 6, 1884.

Case No. 3. A gentleman, Mr. T. H. Schaeffer, from my own State of Maryland, called upon the dean of the Dental Department of the University of Maryland on the 20th of February, 1884, saying he had been sent by a prominent dentist, giving his name. This gentleman, Mr. S., who desired to graduate by staying a few days, "say ten or twelve," was likewise refused, and told that he would be obliged to attend one full course, as he had been in practice ten or fifteen years. *Prestissimo!* he promptly receives his D. D. S. at the graduation exercises of the Baltimore College of Dental Surgery, held at the Academy of Music, March 6, 1884.

Case No. 4, and the last I will write of. Alas for New Jersey; she also furnishes material for this one! Mr. C. S. W. Baldwin applied to the dean of the Dental Department of the University of Maryland, on the last day of February, 1884, for admission to the graduating class, was quickly refused, and *mirabile dictu!* was made a doctor on March 6, 1884, by the faculty of the Baltimore College of Dental Surgery!

Are not these facts, which I have stated so plainly, calculated to make all earnest practitioners tremble for the future standard of dental education of the pioneer college of the world? What can the old college be thinking of? Is it possible that the members of the faculty suppose that such things as the above can be kept from the knowledge of the profession at large? I have heard rumors to the effect that several dental associations will not recognize the diplomas of the Baltimore College of Dental Surgery of this year; and, indeed, these faint mutterings will soon be stern and absolute facts, unless these abuses are corrected.

Let us look at one of these cases for a few moments. We will take that of the gentlemen from New Jersey, Messrs. F. C. Barlow and C. A. Meeker. Here are two gentlemen who have been practicing dentistry for a term of years, without the great benefits of a regular course of training. They conclude that they will attend one course of lectures and receive the honorable degree of D. D. S., though they have borne the title of doctor by courtesy, and have recently been elected to official positions in the Central Dental Association of Northern New Jersey. I do not question the ability of these gentlemen to practice dentistry, for as I remember them, they were my seniors by many years, and may have been practicing successfully longer than I; I only question the means by which they obtained their diplomas, and the right they have to the privileges gained by the possession of them. After matriculating in the University of Maryland and dissecting for two days, they go to the Baltimore College just about the close of the session, and during the time of the final examinations, "having had great pressure brought to bear upon them in favor of this move," they graduate in less than two weeks! Did not the faculty of the Baltimore College set aside all of their necessary requirements in favor of these gentlemen, and is not their action in graduating them culpable in the extreme, and condemnable by every member of the dental profession who is looking and longing for the day when the standard of education shall be greatly elevated? What will be the result of such irregular graduation? Will it not be the complete and total disowning of the diplomas of a once honored and beloved institution? I say most emphatically yes; and I also say, that those gentlemen who carried to their homes the diplomas of the last session of the Baltimore College, if they properly regard their labors to gain a diploma—I mean those members of the class who worked and labored faithfully to gain one—I say, such gentlemen must feel to-day that their striving was in vain, as the much-coveted sheepskin was given away to students who joined their class only two weeks before commencement day!

Why go any further, and speak specially of the other cases? Let the mere statement of the facts given above suffice, and the case

of the gentlemen from New Jersey indicate to the profession how the old college has fallen. Can it be possible that I have made any mistake in the above statements? Would that it were so, but I must answer most positively, no. I am able to substantiate every charge I have made, and many gentlemen of the class in dental surgery of 1883-4, of the University of Maryland, are in full possession of many of the facts, as is the dean of the department, and all are ready to verify my statements.

I am truly grieved to be the exposé of such unfortunate irregularities on the part of my alma mater, but, as by applying the caustic to diseased growths we often remove them, so by giving publicity to these frauds we may be able to correct them, painful though the task may be. I do this from the best and purest motives toward my chosen profession, and I warn the faculty of the Baltimore College that in the future all eyes will be upon them. Let them beware lest they gain for themselves the unenviable reputation of "Buchanan;" let them repair their errors, so far as they may, by not recommitting them; and, if they can tell us why they saw fit during the last session to abrogate their rules, we will all be glad to hear. In view of the facts it will be a difficult task, but they may be able to answer these charges satisfactorily; indeed, they may tell us they have a right to do as they please. If they have a right to act as they have in the past, we wish to be apprised of the fact, so as to be guided in our actions in the future.

58 Saratoga St., Baltimore, Md.

May 10, 1884.

BROMIDE OF ETHYL AS AN ANÆSTHETIC.

BY G. L. CURTIS, D. D. S.

READ BEFORE THE FIFTH DISTRICT DENTAL SOCIETY OF THE STATE OF NEW YORK, UTICA, APRIL 8 AND 9, 1884.

I am indebted to Dr. Julian J. Chisholm, Professor of eye and ear diseases in the University of Maryland, Surgeon in charge of the Presbyterian Eye and Ear Hospital, Ophthalmic surgeon of the University Hospital, etc., of Baltimore, for valuable information in

the use of bromide of ethyl; in the opinion of the writer, the most valuable anæsthetic for use in the dental profession, at least, in minor operations.

It is not without hesitation that I advance any new theory, or advocate the use of any new drug before this assembly, where the gray hairs are many, denoting wisdom and caution. But when we consider the progress of our profession, extending and advancing with perhaps greater strides than that of any other department of science, I do not hesitate to raise higher the banner that signals a new victory, and help bear the standard further to the front.

Dr. Chisholm, a most eminent surgeon, in a private communication, says: "I have given it, I suppose, 2,000 times, and use it every day, often five or six times, always most satisfactorily, and am astonished that any surgeon should be ignorant of this wonderful agent."

From this communication, and the quite extended article by Dr. C. which recently appeared in the *Medical Counselor*, advocating its use and demonstrating its advantages over chloroform and ether as an anæsthetic, particularly in minor operations such as the dentist is often called upon to perform, I was so convinced that it was the agent required to take place of the above-mentioned "stand-bys," that I resolved to give it a trial. With some trouble securing one-half ounce, all the druggists of Syracuse could boast of, on the 25th day of March, 1884, I first administered it, my patient being a robust seryant-girl of seventeen years. Observing the directions of Dr. Chisholm as closely as possible, I proceeded, with the following results: Folding a thick towel in the form of a small cone with a closed apex, I placed between the folds of the towel a piece of newspaper, which made the cone nearly air-tight, then instructed my patient how to make long inspirations, and making her go through the process in advance, informed her she must do this, even though she might feel somewhat stifled, and gave her confidence by an assurance that a few inspirations would put her to sleep. Into this towel cone I poured about one drachm of the bromide of ethyl, and I immediately inverted the inhaler over the

mouth and nose of my patient, holding the edges firmly down to the face. The first one or two inhalations seemed to strangle her, but the timely movement of my assistant prevented any interruption, and in about thirty seconds I removed the inhaler and was ready to operate. I found the muscles were not relaxed and the jaws firmly closed, though the conjunctiva did not respond to the touch, which delayed matters about thirty seconds. After extracting the first tooth I waited about half a minute to note the result of my drug, and then removed the second tooth. At the end of about two minutes my patient showed signs of returning consciousness, and in a half minute more awoke almost as suddenly and completely as from ordinary sleep, without any of the symptoms of nausea that generally attend the administration of other anæsthetics, and personally declared she felt perfectly well, and had had no knowledge of what happened during the process of ethylization.

The face of the patient was considerably flushed while under its influence, and the muscles and veins of the neck were distended. The increased action of the pulse, which was noticed, however, soon returned to its normal state.

About the same results were observed in the only other case in which I have yet administered it, but the patient, being a robust young man, recovered even more quickly than the first mentioned. Dr. Chisholm writes me that the physiological action of ethyl is not known, but the theory is defective oxidation of the blood. I have also been unable, either from our books or personal authorities, to ascertain the *materia medica* of this drug.

I think I should note here, as Dr. C. very aptly observes, that a recumbent posture is essential to the safe and effective administration of any anæsthetic, and that bromide of ethyl differs from others, in that while chloroform vapor freely should be diluted with atmospheric air, ethyl vapor requires the exclusion of all atmospheric air to obtain most effective results. Dr. Chisholm also says that in his earlier experiments an ignorance of this peculiarity nearly persuaded him to vote bromide of ethyl a failure, but that his later custom, to push the ethyl in its concentrated form,

enables him to obtain in from twenty to sixty seconds, and to have no after-consequences of nausea or dullness of feeling.

I have given you, gentlemen, a hasty sketch of my observation in what was, so far as I was able to ascertain, the first administration of this drug in our profession, and for my own knowledge and for the general advancement of dentistry, I most respectfully solicit the experience and observations of our white-haired and more learned associates in relation to this anæsthetic.

SPUTUM-SEPTICÆMIA.

BY W. D. MILLER, BERLIN, GERMANY.

At a recent sitting of the *Congress fur Innere Medecin*, Dr. A. Fraenkel gave an account of a form of Septicæmia produced by inoculating rabbits with the sputum of healthy individuals. Just before the death of the animal, which occurred about twenty-four hours after inoculation, the fungus appeared in the blood in large numbers, in the form of cocci and diplococci.

This discovery is interesting in the first place, from the fact that the cocci of sputum-septicæmia are surrounded by a gelatinous sheath, identical with that which characterizes the cocci of pneumonia, and which was thought to be peculiar to the latter.

It is interesting in the second place, because it shows in the human mouth the presence of an element of disease not yet recognized. Whether this fungus ever occurs in the human mouth in sufficient numbers to render possible a case of blood poisoning from one's own saliva, is a question which cannot at present be answered.

The mouth, placed at the very portal of the human body, appears to serve as an incubator for the most various germs of disease, and it is highly probable that the importance of proper cleanliness from this point of view has not been thoroughly appreciated.

Even in the question of caries of the teeth, it is not at all likely that all the parasitic factors have been ferreted out.

In my last experiments I have succeeded in finding and isolating other acid-producing organisms, besides those described in the

May number of the INDEPENDENT PRACTITIONER; organisms which, as far as the microscope reveals, are identical with the latter, but which are entirely different physiologically. We have in the oral cavity a field of labor that, to all appearances, will not be exhausted for years to come.

At the same meeting were also demonstrated preparations of the fungus of pneumonia. This fungus occurs regularly in forms of cocci and diplococci; in some cases, however, bacilli are also produced, and not infrequently a coccus is seen united to a bacillus, thus confirming what I have already demonstrated for various fungi the fact that a given fungus may produce different forms of development, such as cocci, bacilli, bacteria, etc.

IN UNION, STRENGTH.

BY HENRY N. DODGE, M. D., D. D. S., MORRISTOWN, N. J.

It might appear to the reader of current dental literature that the profession is torn into factions by a bitter feud between the advocates of the "New Departure" and the workers in gold alone. How little ground there is for such strife, and how often the two lines of practice may be advantageously united in a friendly alliance, is typified by the following unimportant incident of practice:

A superior second bicuspid, that recently came under my care, had decayed so extensively about a large gold filling that the pulp was dead and the mesial half of the tooth gone, the remainder of the crown being so much hollowed out that, excepting on the grinding surface, the walls of the cavity, or *cavern*, were the thinnest shell of enamel. The expediency of a large contour filling of cohesive gold extending below the gum, and in so frail a tooth, was doubtful, and the patient preferred to put off the use of a porcelain crown as the last resort. A gold screw, therefore, was firmly cemented into the root of the tooth with zinc phosphate, the free end of the screw extending nearly to the articulating surface of the crown, and the almost transparent walls of enamel received a thorough lining of the same plastic to increase their strength and

render them opaque. That part of the cavity extending below the gum was then filled with Dr. Flagg's "sub-marine" amalgam, and the remainder of the cavity with his "usual" amalgam, packed carefully about the gold screw and finished with a "wafer" of the same material.

At a subsequent sitting, grooves and retaining points were cut into the amalgam and around the end of the gold screw, and all that part of the filling exposed to view was plated with cohesive gold, using both hand-pressure and the mallet in its manipulation, the contour being thus restored and the whole carefully finished. Every indication was met, and a frail tooth rendered once more serviceable and sightly.

Reports of Society Meetings.

MISSISSIPPI VALLEY DENTAL ASSOCIATION.

FORTIETH ANNUAL MEETING, HELD AT CINCINNATI, MARCH
5TH AND 6TH, 1884.

PHONOGRAPHICALLY REPORTED FOR THE INDEPENDENT PRACTITIONER.

BY F. W. SAGE, D. D. S.

(Continued from page 258.)

The next subject opened for discussion was: "What valuable medicinal agents have been introduced into dental practice within the last three years?"

Dr. Taft—The peroxide of hydrogen is one of the agents recently employed in dental practice, about which inquiry is made. My actual experience with it is limited. It is a very good disinfectant. Disinfectants act by breaking up the elementary or binary constituents of a decomposing substance, and so render them inert. It is, however, of little value as an antiseptic. A small amount of vitiated matter will oftentimes keep up decomposition, and a disinfectant will restore the affected tissues to healthy action. The offensive matter is the cause of the irritation, and the vital function is often

fully restored by the free use of a disinfectant. Peroxide of hydrogen is a disinfectant, but not an antiseptic. Some may attribute the return to healthy action of the affected parts to its antiseptic effects, but that is not always necessary.

Dr. Smith—How does peroxide of hydrogen act?

Dr. Taft—By the liberation of oxygen, and its combination with the offensive matter in the abscess destroys its offensive character.

Another agent to which I before referred as a remedy for sensitive dentine, is worthy of mention as a remedy in facial neuralgia. That is Menthol. It is distilled from the oil of peppermint. A few crystals placed in a watch-glass, moistened with a drop or two of chloroform and tincture of aconite, and applied to the face, often act beneficially. A convenient way to use it is to make it into an ointment with vaseline, and apply over the track of the aching nerve. I have also used it in my own case in the treatment of lumbago. It affects the sensory nerves immediately. It should be prepared immediately before using, to prevent the chloroform from evaporation.

Salicylic acid is another agent—not very new, it is true—which is useful in devitalized teeth, where there is a low grade of inflammatory action. It is a disinfectant, and an antiseptic also, to some extent. Do not apply it where there has been recent or acute inflammation about a root. In some such cases I have found it aggravated the trouble. Where there is a low, chronic form of irritation, kept up by fluids or gases, I know of nothing better to use than salicylic acid. Iodoform is also a good disinfectant. Its odor is very objectionable. That may be masked, but it is a question whether it can be done without impairing its efficiency. Resorcin is also good, and is less offensive than iodoform. Oil of Eucalyptus is an antiseptic, and to some degree a disinfectant also. It may be used where a stimulus is not required. I do not think it has any advantage over other agents used. I doubt whether it is better than Thymol, which has long been used. Listerine is simply a disinfectant. It may be used for deodorizing about the office, or in the mouth. I have my patients wash their mouths with it sometimes, when their breath is very offensive. It is efficient, and is easily ap-

plied. I use a little, a teaspoonful, in a glass of water, for rinsing my own mouth at night. It is better for the uses for which it is designed than Permanganate of Potash. The latter agent is objectionable on account of its staining.

Dr. H. A. Smith—The remedies Dr. Taft has mentioned are all valuable. I beg leave, however, to differ with him as to Salicylic acid. It destroys tooth substance. I have found that it acts to disintegrate tooth structure. Dr. Taft stated correctly that it was the oxygen in the Peroxide of Hydrogen which is the active principle. Years ago it was used for bleaching teeth. It is nothing new. A great many medicines are put upon the market as disinfectants. It is not wise to rely implicitly upon any single one of these in all cases. Carbolic acid and glycerine are often very efficient. I give Permanganate of Potash the preference over Listerine for bad cases. Creosote, I think, deserves a high place among the list of dental remedies. It prevents putrefaction, but as a deodorizer we know but little of its virtues. Carbolic acid, we know, will sterilize beef, kill the spores, prevent fermentation, and, with the exception of Bichloride of Mercury, it is the best agent for arresting putrefaction. Dr. James is the only dentist I know who has dared to use this latter agent.

Dr. James—It is true that I did venture to use it in one instance [laughter] and the patient still lives. Not only that, but I think the agent accomplished just what was wanted.

Voices—How did you use it? What did you use it for?

Dr. James—I used it to cure an abscess, in accordance with the suggestion of a physician. One grain to the ounce of water pumped into the root-canal on a broach.

Dr. Van Antwerp—That would be about one-fifth of one per cent. Physicians are using it in the proportion of one part in eight hundred parts of water.

Dr. Smith—I think that if we can use this safely we have a good thing. Its stimulating property will prevent fermentation or putrefaction. It kills like "sure shot."

Dr. Wright—Do not die in the house. [Laughter.]

Dr. Van Antwerp—It is interesting to hear that the dentists are

giving this remedy their attention. The medical profession are experimenting to kill the bacillus by inhalation.

Dr. H. A. Smith—It is claimed, you are aware, that in the use of some filling materials peculiar therapeutic effects are produced, whereby dental caries is more certainly arrested. I recall some recent experiments of Koch, than whom there is no better authority, to determine the value of the salts of mercury for disinfecting, especially the chloride of mercury. Of the eighteen drugs experimented with, corrosive sublimate stands first in value as a true disinfectant. This chloride, he found, not only retards putrefaction, but actually prevents it. An aqueous solution of five per cent. or less, kills the spores and prevents their further development. The statement is frequently made that whenever amalgam is used as a filling material, a chloride of mercury is formed in the mouth, which frequently produces the physiological effects of the metal, and hence the use of amalgam is denounced. On the other hand, it is stoutly denied that any constitutional effects ever result from the use of amalgam. The fact cannot, however, be denied, that amalgam being placed in a tooth, the walls about the filling gradually assume a dark hue. This discoloration is ascribed to a deposition of some salt in the dental tubules. It is believed, as I have stated, that chloride of mercury is so deposited. If this be present, may not the so-called therapeutic action of amalgam fillings be due to the marked antiseptic and disinfecting property of the corrosive sublimate? A solution of this salt is white, whereas the color of the tooth is changed to a blackish hue. But, since the filling leaks, may not the discoloration be attributed to the presence of other salts of the metal? for example, sulphureted compounds. It is true, probably, of nearly all the alloys in use, that they leak, and yet they have very good tooth-preserving qualities. This is indeed a common feature of several of the plastics—an unexplained phenomenon—that they are not water-tight, and still teeth are saved by their use. It has frequently been stated upon this floor that caries never recurs about an oxy-chloride of zinc filling so long as the filling remains intact. And yet Prof. Flagg, who may be regarded as most excellent authority, says the oxy-chloride preparations

shrink notably. So also of the gutta-percha preparations. Indeed, when we consider the very attenuated form which water may assume, it seems almost incredible that water may be almost absolutely excluded from the cavity, even by gold filling, especially if the operation be difficult or complicated. How exceedingly thin must be the film of water that floats away in the air in the form of a soap-bubble! A recent calculation by Sorby shows that 3,700,000,000,000,000 molecules of water are contained in one cubic thousandth of an inch! (Three quadrillions seven hundred trillions!) These figures are surely sufficient to alarm those of us who practice conservative dentistry on the principle that teeth are saved by excluding moisture from the cavity of decay.

Dr. Taft—I opine that the answer will be found in this explanation: The vapor of mercury is exceedingly volatile; it is almost impossible to make the joints of a retort so tight that it will not pass through. It penetrates the dentine of the tooth frequently, and discolours it. It passes into the tubules and oxidizes, and the particles of oxide are larger than the particles of the vapor, and so the ends of the tubules become closed by them. These particles thus form a shield against the agents producing decay, and the result is their effectual arrestation. It is stated that some amalgams do not thus blacken the dentine. That may depend either upon the fact of the teeth being very dense, or the amalgam may be so prepared that the white vapor of mercury does not escape, and so there is no penetration and subsequent discoloration of the tubules. But, notably, soft teeth and the teeth of young persons are liable to become black when amalgam is used.

Dr. Smith—You will usually find chlorine free in the mouth in such cases, and what then prevents the formation of bichloride of mercury? I think there *is* that combination.

Dr. Taft—I hardly think so. Oxygen is in far greater abundance, even granting that free chlorine exists, and it asserts its affinities first of all. I do not imagine that bichloride of mercury is ever produced by the presence of amalgam fillings. But if it is, it is one of the strongest arguments against using amalgam fillings that could be advanced. That would prove conclusively that amal-

gam is a subtle poison, and its use might then well be characterized as criminal. But always, precisely this formation of the oxide of mercury precludes the possibility of any other salt being formed.

Now, again; as to the distinction between a disinfectant and an antiseptic. Oxygen is the chief agent in decomposition, and any agent which will prevent the occurrence of that process is called a disinfectant. A disinfectant acts in one of two ways: it either takes away one of the elementary constituents of the offensive matter, or it separates those constituents and leaves them free to form new compounds of an inoffensive nature. What is decomposition? You destroy the vitality of a tissue, and oxygen presently asserts its affinities, being no longer held in abeyance by the vital force, and the tendency is to dissolution of the tissues. Since oxygen is a necessary factor in the case, if you exclude it from the surface exposed to its influence, you prevent decomposition. If, for example, you apply carbolic acid, it coagulates the albumen of the tissue, forming an eschar, so that oxygen has no access to the tissue, and no decomposition occurs. That is a part of the antiseptic process. Whether it be by a solid or a liquid covering, the result is the prevention of decomposition, provided the germs be effectually excluded.

Dr. How—My idea of the distinction between a disinfectant and an antiseptic is like this: a disinfectant is a policeman who steps in and arrests one of the offending agents after the disturbance has fairly commenced, and so breaks up a row. [Laughter.] The antiseptic is another policeman, who takes possession and preserves the peace on the first sign of an impending disturbance. One is corrective, the other preventive.

Dr. Smith—Admitting, as has been asserted, that oxygen gets to work more promptly than do other liberated gases in the mouth, it is beyond controversy that other gases seek their affinities just as positively and unerringly, if less conspicuously. Now, why is it presumed that chlorine is an exception in this instance? Those who accept the theory of the formation of hydrochloric acid in the mouth as an agent of decay, do not hesitate to speak of the presence of free chlorine in the oral fluids. Why will not this unite with

mercury if it be present? I am not yet convinced that that does not occur. It is well known that English amalgam blackens dentine in a very marked manner. Sullivan's amalgam does this. Now, an amalgam which blackens *reasonably well* is better than one which does not blacken at all.

Dr. Taft—There occurs to me an insurmountable obstacle to Dr. Smith's suggestion—that formation of mercury cannot be sufficiently volatile to pass into the tubules. The only way, indeed, that I can see how this blackening is effected, is by the infiltration of the vapor of mercury. Chlorine has a stronger affinity for the dentine than for mercury.

Dr. Hoff—Peroxide of Hydrogen has proven very effective in my experience of six months' use of it. It has taken the place of creosote. I like it because of the facility with which it can be applied. Used in a syringe it does not, like other agents, cauterize the soft tissues. I used it in one instance in treating two molars about which the process had been lost by necrosis. Could not get through the roots. Filled with oxy-chloride of zinc, and treated the parts externally by injections with the syringe, once repeated. The cure is apparently complete.

At the conclusion of the discussion, the Committee on Obituaries reported a resolution on the death of Dr. T. L. Buckingham, as follows :

This Association desires to place upon record its sense of the great loss which the profession has sustained by the loss of Prof. Thos. L. Buckingham. We may not hope by any form of words to express the value of his faithful and life-long devotion to the educational and practical interests of the whole profession, or of his most estimable character as a man, but we offer this heartfelt tribute in token of our sincere appreciation of what he has wrought for us. We wish also to convey to his bereaved family our sympathies with them in this time of their sore affliction and irreparable loss. The Secretary is instructed to transmit to the family a copy of these resolutions in behalf of the Mississippi Valley Association of Dental Surgeons, in annual association at Cincinnati, March 6th, 1884.

W. S. HOW,
G. W. SMITH,
J. TAFT,
Committee.

The annual election of officers of the Association for the ensuing year resulted as follows :

| | | |
|---------------------------------------|-------|-------------------|
| President—Dr. WILLIAM VAN ANTWERP, | . . . | Mt. Sterling, Ky. |
| Vice-President—Dr. F. W. SAGE, | . . . | Cincinnati, O. |
| 2d Vice-President—Dr. A. L. EMMINGER, | . . . | Columbus, O. |
| Recording Secretary—Dr. A. G. ROSE, | . . . | Cincinnati, O. |
| Corresponding Secretary—Dr. A. BERRY, | . . . | Cincinnati, O. |
| Treasurer—Dr. FRANK HUNTER, | . . . | Cincinnati, O. |

AMERICAN MEDICAL ASSOCIATION.

SECTION OF ORAL AND DENTAL SURGERY.

REPORTED FOR THE INDEPENDENT PRACTITIONER

BY JOHN S. MARSHALL, M. D.

The thirty-fifth annual meeting of the American Medical Association was held in Washington, D. C., May 6th to 9th inclusive, and was largely attended, over 1,300 names being registered. The section on Oral and Dental Surgery was well represented. Its meetings were held in the afternoon from 2.30 to 5 o'clock; the mornings being devoted to the sessions of the general body. The papers read before the section were as follows:

“On Assuring Healthy Dentine over Endangered Pulp,” by Jacob L. Williams, M. D., Boston, Massachusetts.

“Dental Caries and its relations to the Germ Theory of Disease,” by G. V. Black, M. D., Jacksonville, Illinois.

“Sponge Grafting,” by Edward C. Briggs, M. D., Boston, Massachusetts.

“The Removal of Stains from the Teeth Caused by the Administration of Medicinal Agents, and the Bleaching of Pulpless Teeth,” by A. W. Harlan, M. D., Chicago, Illinois.

“Overdraught of Nervous or Vital Power as Affecting General and Special Health,” by Jacob L. Williams, M. D., Boston, Massachusetts.

“Periodic Hemorrhage from the Gums, Associated with Recession of the Gums and Alveolar Processes, the result of Amenorrhœa,” by W. W. Allport, M. D., Chicago, Illinois.

The first session was called to order by the chairman, Truman W. Brophy, M. D., of Chicago, Illinois, who after a few words of welcome called for the reading of the paper of Jacob L. Williams, M. D., of Boston, Massachusetts, "On Assuring Healthy Dentine over Endangered Pulps."

The author began by describing what he wished to be understood as meaning by *endangered* pulps, viz.: those cases in which the pulps through the action of caries have but little of the natural covering of dentine left over them, and which covering is very apt to be more or less tainted with the agents that have produced the pathological condition.

In such cases there will be found an acid condition, with fermentive action often in full sway, demanding at a first thought the most positive and effective neutralizing and corrective applications. Just beyond, however, lie some of the most highly sensitive and delicately organized tissues of the whole body; fibers that if rudely handled will set in motion vibrations that will be likely to continue, or be repeated in a very serious way; tissues which if once inflamed, none are more doubtful of survival. The preservation of the vitality of the pulps in these cases means additional years of usefulness of the tooth. These circumstances are often overlooked, or not taken into consideration in using violent or caustic applications. He then asked the question, "What should be done?" and stated that his ideas upon this point might best be given by mentioning his plan of treatment which was formed, tested, and adopted during the years 1847-1848, and which in general principles he still found most satisfactory up to the present time, though new materials had been added to the list of remedies for diseased conditions since that date.

The plan of treatment is as follows: After removing the loose debris he applied a mild antacid, such as aqua calcis, or a solution of bicarbonate of soda, after which was applied a solution of chloride of calcium to neutralize the fermentive elements, and disinfected with very dilute wood creosote. The cavity was then dried and sealed up for from two to three weeks, after which it was again opened and subjected to the same treatment, with the addition of

a mild astringent, such as tannic acid in weak solution, and again sealed, generally for a longer period. This dressing to be repeated at proper intervals and continued until permanent health of the dentine was assured; sometimes extending over a period of two years or more.

The object of this plan of treatment is to avoid the undue irritation of the pulp so likely to follow the application of the stronger remedies, and which often results in serious mischief. With the mild treatment the effect is more or less transient and requires frequent repetition, but this will be required less often as the dentine gains in soundness and health. By this method we help nature in the line of her preference in protecting rather than injuring a vital point, and keep the disease in check. He gave as his observation and practical experience that the proportion of successful cases from the "mild repetition" plan was far beyond that of the single capping practice. Every attempt, however, will not be crowned with success; constitutional as well as local causes, both sometimes of an obscure nature, may thwart our plans; the neglect of the patient, or his piratical appropriation by some other practitioner who does not appreciate the object of the treatment, may cause a failure.

The paper closed with a detailed description of a representative case, and the treatment adopted was substantially that given above.

DISCUSSION.

Dr. W. W. Allport, Chicago, Ill.—Was certainly very much interested in the paper and the line of treatment marked out by the author. It has been the usual practice to apply antiseptics in these cases—creosote, carbolic acid, eucalyptus, etc., in various strengths, and then to immediately cap with some non-conducting material like gutta-percha, oxy-chloride or oxy-phosphate of zinc.

The first important point to be gained is to neutralize or destroy the agents of decay, and then to protect the pulp from irritation of every variety. This can best be done by using a non-conducting material directly over the pulp, and then to fill the balance of the cavity with a substance sufficiently hard and firm to prevent irritation from mechanical pressure. But we do not see why the

treatment need be continued over so long a period as that practiced by Dr. Williams.

Dr. J. L. Williams—The object in continuing the treatment over so many months is to be sure that the active causes of decay are destroyed or rendered inert, and to guard against pulp irritation by frequent dressing with mild remedies, rather than to run the risk incident to the application of such intense medicaments as are commonly used.

Dr. Allport—I have heard something recently about a new remedy for the treatment of this class of diseases, made from the oil of cloves, and known as Eugenol. It has been very highly recommended as having a decidedly fatal influence over germ life. Have had no experience with it myself, but would like to hear a report upon the subject from those gentlemen who have experimented with it.

Dr. A. W. Harlan, Chicago, Ill.—Dr. Williams spoke of his treatment as antagonizing the acid or acid ferment. Such treatment could be only of temporary benefit; the remedies must be of sufficient strength to destroy the agents of fermentation. Most practitioners are in the habit of swabbing the cavity of decay with creosote, carbolic acid, and other like remedies, and after temporarily sealing it up for a few days, capping with gutta-percha solution, oxy-chloride of zinc, metal caps, with various forms of dressing placed upon the under surface, and permanently filling the cavity of decay.

But in such cases we have no means of knowing whether there has really been any deposit of secondary dentine, and I believe in a vast majority of them no secondary deposit occurs.

Dr. Allport moved the further discussion of the paper be deferred until to-morrow, as he had been informed that Dr. G. V. Black, of Jacksonville, Ill., would present a volunteer paper upon a subject closely allied to the one under discussion, and it would be very desirable to consider them both together. Motion was carried. Dr. John S. Marshall, Chicago, Ill., made a motion inviting Dr. Black to read his paper to-morrow afternoon, and that it be the first order of business. Motion carried. The next essay on the programme

was by Dr. Reuben A. Vance, of Cleveland, Ohio, "On the Removal of Tumors from the Upper Jaw," but Dr. Vance not being present the subject was passed. On motion of Dr. Allport a committee on publication was appointed, to whom all papers must be referred. Committee, Drs. Allport, Marshall, Harlan.

Section adjourned to meet on Wednesday at 2.30 P. M.

(TO BE CONTINUED.)

NEW YORK ODONTOLOGICAL SOCIETY.

A regular monthly meeting of this Society was held on the evening of April 15th, at the residence of Dr. W. H. Dwinelle; the President, Dr. W. Jarvie, Jr., in the chair.

Dr. N. W. Kingsley—Exhibited a clamp which he said would apply to anything and everything—a curious piece of mechanism, admirably adapted to all cases. Dr. K. also read a brief paper, which contained a "shy" at the medical profession. It claimed that dentistry, although a specialty, was nevertheless a department of medicine. It had been considered a mere mechanical pursuit, and therefore it had been slighted. Its duties require a delicacy of touch quite equal to any known in general surgery.

Tendencies to caries were partly due to conditions peculiar to ancestors. The direct cause of caries, as with other diseases, is from violation of hygienic laws. Teeth decay from lack of nutrition, or from constitutional derangement, the tendencies to disease being less in healthy than in unhealthy organisms. Caries is due to a solution of lime-salts in the tooth-structure, from acids generated in the mouth. Bacteria are not found beyond the parts decalcified. The food-fermenting acids are in part neutralized by the saliva. The approximal surfaces are the most vulnerable points of attack.

Dr. J. Smith Dodge, Jr.—Exhibited two casts, one representing irregularity of the incisors in the mouth of a gentleman forty-six years of age, caused by the loss of molars, which permitted the incisors to come together in such a manner as to force one superior central much forward, and the other much inside its natural position, and

thus locking on either side of the inferior incisors when the mouth was closed. An appliance was fitted to the mouth to prevent the incisors from meeting, and with no further effort the teeth within a fortnight fell into a line of regularity (as shown by the second cast), although they had been out of proper position for nearly twenty years.

This case suggested the uncertainty of keeping teeth that have been regulated from returning to their natural state of disorder after retaining plates have been removed, as their natural tendency seems to incline them that way.

Dr. C. A. Woodward—Presented a model representing the superior teeth in the mouth of a young lady twenty-one years of age. The left central incisor was missing. The deciduous teeth were extracted many years before, but only one permanent central incisor came, and the vacant space had nearly closed. Wedges were introduced to widen this space, and a few months later four tiny supernumerary teeth made their appearance in a cluster, as shown by the cast. Dr. W. had also a cast showing the mouth of a boy fourteen years of age. Two years before, a sixth-year molar was extracted, and in its place a supernumerary soon after appeared. The attention of the family physician was called by the child's mother to this remarkable case, and after looking at it he stated that he had seen similar cases before, and explained the matter by saying that "in the forcible removal of large teeth little fragments of bone are sometimes left in the socket, and from such fragments these extra teeth are formed"!

Dr. W. H. Dwinelle—Spoke of jack-screws for regulating teeth, which he devised and successfully used over twenty years ago. He also cited a case he had under treatment where the patient, a lady, was so exceedingly nervous as to be beyond control. He remarked that with good care and kind treatment such trying patients sometimes turned out the best. He has in some instances of extreme nervousness administered atrophine and morphine.

Dr. C. F. W. Bodecker—Exhibited specimens of gold fillings from a dentist in Germany, which were made wholly with burnishers, and in a remarkably brief space of time.

The essayist of the evening, Dr. J. Smith Dodge, Jr., read a paper entitled "The Spheroidal Tendency of Amalgam," in which he proposed to "discuss a theoretical explanation of an undoubted fact"—that amalgam fillings which change shape after becoming solid do so from the tendency of amalgam to assume the form of a sphere. This at least seems the most reasonable explanation. He knew not whence it originated, nor had he seen any attempt to prove it. It may have been suggested by familiar facts. When broad, flat-faced fillings are found bulged out at the center and drawn in at the edges, a conclusion is reached that the amalgam is struggling to become a ball. He would not assert this as the veritable theory, but it was one worth considering. He recognized objections to the belief that the molecules of so solid a substance were subject to laws that draw liquids into globular forms, yet as amalgam does alter its shape the molecules must have freedom to change position. As an offset to this theory it may be said that no other solid substance can be produced to demonstrate it. Students of nature are incredulous of "mares' nests," and demand proof concerning unparalleled phenomena. He disclaimed an undoubting belief in this theory, suspecting it may give place to some other less remarkable, but adopts it now as a good working hypothesis. He was led by curiosity to consider the changes referred to in a *geometrical* light, and discovered that such a theory suggested certain definite changes beyond those referred to as "shrinkage." As his mind dwelt on the subject he observed more closely the changes, and found abundant instances of nearly all that had been geometrically deduced. He had this matter in mind for a year, and increased observation convinced him that certain rules could be followed for the formation of amalgam plugs whereby the tendency to a change of form might be utilized to advantage. He proposed to discuss the geometrical theory at first, and then consider facts of practice. "The tendency to spheroidal forms results from mutual attraction of all the molecules as arranged around a common center, and when particles are free to move they naturally go in such direction." "If obstacles interfere they make their nearest possible approach to a sphere, with more or less

failure, however, to reach it, the governing law being that every point of the original outline will so change as to approach the outline of a sphere having the same cubical contents." Dr. D. illustrated with diagrams the changes likely to occur in fillings or masses of amalgam of various shapes, in their tendency to assume spheroidal forms. "Let it be carefully observed," said he, "that the lengthening of short diameters is as much a necessary part of the change as the shortening of long ones." He stated also, as a governing law, that where an irregular mass tended to assume a spheroidal form, every point of surface which is more distant from its geometrical center would move towards the center, and every point less distant would move from it; or the long diameters would shorten and the short ones lengthen.

Referring to his diagrams the Doctor explained that where amalgam was placed within an unyielding matrix, like a cavity in a tooth, the filling, being unable to move the walls, would naturally be forced out at the open space and contract at certain points, caused by changes of diameters alluded to. Amalgams in broad, shallow cavities of oblong shape are liable to drop out, from the shortening and thickening of the mass, but where well secured by undercuts at extremities of short diameters, are likely to remain. The principle is that the original form of the amalgam mass determined the changes of its parts, and remembering the rule concerning the changing of diameters, the operator can in many cases secure good results by varying the forms of cavities and plugs.

The Doctor closed by remarking that if the theory suggested was the true one (although he would not positively assert it), he wished to advance certain practical points which he considered valuable. He intimated that "experimental confirmation in practice of theoretical deductions would go far towards establishing the theory suggested." He expressed much interest in his observations, and trusted that what he had stated would awaken others to give the matter reflection and examination.

At the conclusion of the essay, Dr. Dodge stated that he had that day examined teeth previously filled with amalgam, the

appearance of which tended to confirm the truthfulness of the theory referred to in his paper.

Dr. E. A. Bogue—Experimented with amalgam a number of years ago in various ways. Had witnessed cases similar to those described by Dr. Dodge. Had noticed longitudinal shrinkage in experiments he had made.

Dr. J. W. Clowes—Had heard of changes taking place in amalgam fillings, but did not believe that good amalgam would change form. Some poor amalgams were in market, and some contained cadmium. He emphatically condemned cadmium. Formerly he used the old style of fillings made from filings of coin, which were excellent "saving fillings," but became black. To avoid discoloration in some cases, he packed tin in the front of cavities and completed with amalgam. Experimenting in this manner led him to the discovery that tin made amalgam white, and improved its quality. This was in 1845, and he claimed to have been the first who suggested this combination.

Dr. J. F. P. Hodson—Stated that Dr. Dodge's paper presented a new phase of the subject, which was interesting. In his own practice he had combined lumps of amalgam already hardened, with fresh amalgam, with a view to prevent the change of shape.

Dr. B. Lord—Was much interested in the paper. It gave new light to the subject, and food for thought. He thought it might be the explanation of what he could not understand in his practice with the use of amalgam. He had noticed that cavities filled in different teeth of the same mouth at the same time, and with the same amalgam, exhibited different aspects. "Amalgam fillings do not always fulfill our hopes and expectations in preserving. We find shrinkage and leakage, but more in some cases than in others. It does better in hard teeth." He never feels sure of amalgam. Considers tin better, where favorable conditions exist for its use, but alloy better for some cases, yet finds much difference in alloy.

Dr. C. E. Francis—Had also listened with much interest to the paper read by Dr. Dodge, and trusted that it would be well consid-

ered by all who were present. He had viewed amalgam as a mystery. In the early days of his practice he was prejudiced against its use, and perhaps then without just cause. He had always used it with some degree of hesitation—not from its liability to discolor, nor from fear of any mercurial effect on the system, but felt it to be unreliable from its tendency to change shape. Whether this change was expansion or contraction had long been a question, but that it frequently receded from the marginal walls of cavities was a fact known to every gentleman present. He had observed that in some cases it would keep cavities well preserved for years, and in other cases would fail in a few months.

Dr. F. Y. Clark—Believes amalgam changes shape, hence cannot rely on it, yet there are cases where he feels obliged to use it. In order to overcome shrinkage or expansion he sometimes mixes it with two-thirds its quantity of oxy-phosphate of zinc, which will combine well with it, and finishes by covering the surface with amalgam, to prevent wear.

Dr. Francis—Alluded to the combination of amalgam with oxy-chloride of zinc, which was suggested some years ago by Dr. Wright, of South Carolina. He used it in one or two cases with a fair degree of success.

Dr. Bogue—Intimated that “we meet to learn.” It disappointed him to feel that so many dentists have no fixed methods for mixing amalgam, and he stated the importance of using a balance for accurately weighing the alloy and mercury. He was first driven to amalgam by necessity, and when he found he *must* use it he investigated concerning it, and tested its merits. It should not be washed, but packed or malleted so hard as to be nearly set. He admitted that there were different grades of amalgam, but considered this a loose way of talking.

Dr. A. L. Northrop—Asked if any one was capable of giving a recommendation for amalgam.

Dr. Lord—Repeated a remark made by Dr. Francis, that amalgam was a “mystery,” as it so varied in appearance and properties.

CHICAGO DENTAL SOCIETY.

MAY MEETING.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY A. E. BALDWIN, M. D.

President Harlan in the chair.

The subject of the evening was "Correction of Irregularities."

The first thing was an excellent, though brief paper on the subject, by Dr. J. G. Reid, who said it was a subject upon which much had been written and that many plans had been advocated. Of all the great variety of operations demanded of the dentist none should be given more scrupulous thought, care and attention than this. Teeth when in proper relation and proper shape articulate perfectly, and in such cases mastication is thoroughly performed. He desired to impress upon all the necessity of a study of the character of the deformity, avoiding haste. No two cases are exactly alike in cause or result. Without the earnest co-operation of the patient, treatment will probably end in failure.

The first thing necessary is to get a *perfect* impression of the parts, and of the many ways to accomplish this he thought that with plaster by far the best. He believes that black rubber is as a rule the best for regulating plates. It is easily adapted, cheap, and non-irritant. Believes Dr. Coffin's plan of spreading the arch is the best, but the dentist should select wire of a size suitable to the age of patient. Often small pieces of sea-tangle tent may be used with advantage to wedge between plate and teeth. These pieces should be changed once in two or three days. As a rule, he was not in favor of the use of jack-screws. Finds more difficulty in regulating the lower than the upper arch. He often does it by first spreading the upper with Coffin's plate, then retaining, and thus, by throwing the force of mastication on the outer cusps of the lower teeth, moves them out. Thinks rubber bands are of great service in almost any condition, but in the use of them care is required to keep them from irritating the gums. They may sometimes be used by slitting the band part way round, letting the split portion rest on the crown of the tooth. Sometimes they may be retained by small pluglets of cotton between the teeth. While much may be said

against the plan, he yet believes that many cases may be facilitated by judicious extraction. His paper was accompanied by many models and appliances.

Dr. Crouse—Commended the paper highly for its radicalness, and that was a characteristic necessary to the accomplishment of anything in any field of labor. You must insist upon the co-operation of the patient. The plate should be worn in the mouth instead of in the pocket. The earlier you begin in life the better. Thought modeling compound the best material for taking impressions. Thinks Coffin plates are useful, but as a rule would prefer jack-screws, as they spread the arch more rapidly. *Be sure your plates are worn.* Regulating should be made a specialty, and the man who attends to this should do nothing else. Regarding extracting, he thinks cases requiring it are very rare. Believes more failures result from not retaining the teeth in position after moving them than from any other cause. You should insist on cleanliness. In answer to a question, Dr. Crouse said that in his hands Dr. Patrick's method had not proved as satisfactory as he could have wished.

Dr. Talbot—Spoke of Dr. Farrar's and Dr. Patrick's methods, but said he thought they would not meet all requirements. Is a firm believer in the jack-screw and wedge, with their many modified forms, as the simplest and easiest methods of moving teeth.

Dr. Noyes—Suggested that the lower arch could be easily spread by securing a model and cutting it in two in the mesial line, then spreading the heel or molar end of it slightly, imbedding it in plaster, making a plate to fit, and springing this on the teeth, the spring of the plate producing the required pressure.

Dr. Brophy—Enlarged upon the necessity for studying each case. In order to retain the teeth in place after moving them, he often uses a modification of Dr. Patrick's apparatus. A thin platinum band is fitted around a molar or bicuspid on each side, and a platinum bar attached to one band and passed through a loop in the other. The teeth are fastened to this bar; or platinum bands may be fitted to the teeth, and then united to a light gold or platinum band inside the arch.

Dr. Newkirk—Said he had come to like modeling compound better than plaster for impressions. He thinks the reason so many disliked it was because they did not let it get cold enough before removal. He suggested holding a sponge wet with cold water against it in the mouth; or a lump of ice may be used. Believes the successful regulator is the one who is mechanic enough to improvise the necessary apparatus for the special case.

Mrs. Dr. Mann—Said that in getting sea-tangle tent one should examine and select only the pieces that are solid, as many are hollow. She condemns the rubber bands and kindred appliances, as they produce constant pressure, and thus awaken inflammation. Thought the jack-screw method was preferable, as after each removal of the teeth a period of rest would follow, thus preventing inflammatory action.

Dr. Harlan—Would not commend any particular method. Much had been said about what to do. He would speak of something one ought *not* to do, and that is extract lateral incisors or cuspids under any circumstances. The dentist should use judgment, patience, and common sense. Crowded and irregular arches are often caused by not retaining the temporary cuspids, though a large majority of cases arise from such extractions. In using Coffin plates he recommended loosening the spring gradually. Thinks these plates are better than jack-screws. In constructing retaining plates he makes the edge of the plate next the teeth of soft rubber.

Dr. Crouse—Spoke of a band with bar attached as an excellent appliance to use in moving individual teeth. Fasten the band on with oxy-phosphate. In answer to a question how he retains teeth in position after regulating, said he often made a light, thin, skeleton plate of celluloid

Dr. Noyes—Recommended Dr. Black's plan for retaining, by moving the teeth with figure of eight ligatures.

Dr. Swain—Spoke of a couple of cases of peculiar deformity that he had treated, in which he had capped the molars until the bicuspid had come up in line; then capped the bicuspid until the molars came up.

The Society adjourned to meet the first Tuesday in June.

SOUTHERN DENTAL ASSOCIATION.

SIXTEENTH ANNUAL MEETING, HELD AT LEXINGTON, KY., MAY 6, 7, 8 AND 9, 1884.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

FIRST DAY.

The Association met in the Y. M. C. A. rooms, Tuesday, May 6, there being present, beside representatives from the various Southern States, a number from Ohio and Indiana, and one from Illinois.

At two o'clock P. M. the convention was called to order by the President, Dr. McKellops, of St. Louis. Prayer was offered by Dr. J. Taft, of Cincinnati, and the President presented his address.

Dr. A. O. Rawls, of Lexington, chairman of the Executive Committee, then delivered an address of welcome.

In the absence of the Secretary of the Association, Dr. J. S. Walter was elected Secretary *pro tem.*; and the minutes of the last session being read, were approved.

The Executive Committee reported the following order of meeting:

Morning session from nine to twelve o'clock.

Viewing instruments and material on exhibition by various dealers, twelve to two o'clock.

Afternoon session, two to five o'clock.

Night session subject to order.

DENTAL EDUCATION.

Prof. R. B. Winder, dean of the Baltimore College of Dental Surgery, read a paper on Dental Education.

He first considered what education is—its purposes and objects. Practically and theoretically it has been found necessary to have general, special, and ornamental education. Knowledge is confined to nature and her laws. As knowledge increases, the attaining of a general education becomes more difficult. The object being success in life, a young man should first be taught the essentials of success in his especial calling, and having attained these, it is his

duty to cultivate and enlarge his mind in every way. Then he denounced in strong terms the wrongs perpetrated under the name of "female education," and argued that woman should be educated in the essentials of success in her pathway in life. Defining and explaining special and ornamental education severally, he held that that man is best educated practically who has most thoroughly mastered the essentials of success in his field of living—who is a success in his specialty. This brought him to dental education, and the founding of the Baltimore College of Dental Surgery by Chapin A. Harris, forty-six years ago, since which time many dental colleges have arisen, and many medical schools have added dental chairs to their faculties. This has caused great diversity of opinion as to the best method of educating dentists. He combated the idea that dentistry is a specialty of medicine. As did surgery, so has dentistry come to the front rank. Dentistry stands on these pillars—mechanics, artistic taste, and theory, named in order of their value. A dentist deficient in either will never be a success. Practical education is necessary, and everything unnecessary must be discarded in teaching dentistry. Diagnosis is most important. Graded courses should be established, and diplomas should be granted on knowledge, not on the time spent in pursuit of it. There is a necessity for the cultivation of artistic taste, involving a study of nature. There is need for a study of physiognomy (especially as most of the muscles of the face have their origin and insertion in the maxillary bones), for the acquiring of an accurate knowledge of the laws relating to physical beauty, and a skillfulness in carrying out their demands, if we would give dentistry an honorable, reputable and enviable place among the professions.

Drs. Taft and Smith, of Cincinnati, Dr. Patrick, of Belleville, Ills., and others spoke on the subject, which was left open for further discussion.

Dr. H. A. Smith, of Cincinnati, and Dr. J. S. Cassidy, of Covington, Ky., were elected active members, and Dr. John J. R. Patrick, of Belleville, Ills., an honorary member of the Association, which then adjourned to meet at the office of Dr. Rawls at eight o'clock.

EVENING SESSION.

After opening, Dr. C. E. Dunn, of Louisville, was elected a member.

Dr. Patrick was called on to speak on operative dentistry in relation to regulating teeth. He said there were so many questions connected with the regulating of teeth that it was difficult to speak definitely. No two cases are alike in the displacement and the condition of the surrounding parts. Besides, there are defects on all sides. The only certain guide is a correct knowledge of the parts surrounding the teeth to be regulated and shifted. That teeth can be changed in position there can be no doubt. Nature has set the example by shifting them out of place; art can use means to get them in their places. The question of how to do it remains with the individual, to a great extent. Whatever successful means are used, they must inevitably follow certain fixed laws of mechanics, known ever since Archimedes explained the operation of the lever. The rest is a question of judgment. Time is absolutely necessary. Every tooth has a cell within the alveolar process. A tooth of a single fang has only one cell, divided into two parts; a primary cell, embracing the neck of the tooth, and the fang cell. The formation is more clearly seen in teeth that have more than one cell, as the bicuspid and molars. As all the teeth of a set have a differently formed cell, of course, if you wish to shift teeth, they must be clearly understood. Take, for instance, the first bicuspid of the superior maxilla. It sometimes has two fangs, always two canals. When separate fangs are wanting they are united. The second bicuspid very seldom has its fangs separated. The first superior molar has two fangs, the first external, the other internal; a primary cell in the neck of the tooth, and a dental septum that separates it from the adjoining tooth. The canal passes up through the tooth. There it has a fang septum running up into the bifurcation. In shifting that tooth you disturb every one of those cells and septums. The same tooth in the lower jaw has two fangs cognate, four separate canals, sometimes bifurcated, sometimes with four fangs. As a rule, there are two fangs cognate, posterior and anterior. As all teeth have different surroundings, and are different as

to support, thickness, form, and size, they require to be differently treated, to be dealt with intelligently. Once having begun, keep at it. You will have to trust in Providence. You might as well go slow. As one side excavates, the other will deposit a callous, which will become bone. When you change the position of the cell you change the position of the tooth; for wherever the tooth goes, there the cell accompanies it. You will find that with anomalous teeth there are anomalous cells. You cannot always tell by the crown the condition of the fangs. When the crown is very large the fangs may be very small; and when the crown is very small the fangs may be very large. The teeth of the human mouth you will very seldom find equally balanced, but showing as much difference as between the appearance of two separate individuals. In shifting teeth you must have one fixed point (two are better); and one movable point. You can move teeth between two fixed points in any given direction, whether you use the split plate or any other kind of method. The plate generally has more than one fixed point—it should never have more than two. A molar tooth is just as easily moved as a bicuspid. When you have two fixed points, one on either side, the probabilities of success are better.

There is a difference between the superior and inferior human maxilla. The outer wall of the superior maxilla is the weaker. In a large majority of cases there are signs of the fangs of the front teeth, especially the canines, protruding on this wall externally. It is not so in the lower jaw. In the upper jaw the outer side is the weaker; the inside the stronger, having a thicker wall, reinforced by a blade process which comes up to the alveolar process. The teeth are easier to move outward than inward. In the lower jaw there is also a line of weakness and a line of strength. The molars are reinforced by a hard, bony wall, termed the oblique ridge, and are thrown inward. In extracting, note that they should be thrown inward, as it is almost impossible to force them outward, on account of that ridge. The second bicuspid takes just a corner of it—the internal anterior corner. The process is thinner on the inside till you come to the second bicuspid, or right to the weakest point; then the inner process of that same ridge is the thickest. The

anterior is thickest inside, and the posterior thinnest. It forms a figure 8. That is the reason the maxillaries press more at that place. If you must move a tooth there, you will have to go slow, because of the great length of the fangs, and the proximity to the surface. If much force is used, inflammation will be induced, which it may take months to control. The six front teeth are fortunately those we have most to work upon, and we have the others to anchor to.

Dr. Patrick answered a number of questions in regard to the extraction and movement of teeth. He wondered that more injuries are not done in pulling teeth, because so many muscles attach to the jaws. In making a plate for the lower jaw a very nice impression is needed, and not too low, lest it cut the muscles.

Leave young teeth alone. Give them time, even when you do regulate them. When you disturb a tooth, hold it. Never use rubber except to get the tooth in place; then something firmer to keep it there. He would not attempt to regulate permanent teeth under fifteen years. Deciduous teeth have to be taken between the ages of four and five. Before four the roots are not formed, and after five they are beginning to absorb. The wearing away of the little cusps on the incisors is a good indication that the fangs have calcified, and the teeth should never be removed till this is the case. The same rule will help in observing as to the time when the molars have developed. You have a sure sign in the incisors. He would take a patient at twenty-five, or thirty, or forty—if healthy.

If the tooth will not develop, make room for it to develop. A buried incisor should be relieved, even if the cusps are not visible. There are exceptions to every rule.

To fasten the ends of this wire (Dr. Patrick's apparatus), first select a back tooth, then make a piece of gold plate to fit snugly, and attach the slide to it with the screw. It does not matter if it doesn't fit exactly tight, provided it embraces the tooth somewhat. When you bring the strain between these bands, and the spring relaxes, it may drop out as the tooth moves. Then screw it up. As the bicuspid is out of line, band this inside, and it presses them in.

If an upper tooth pass between two lower teeth, bring these two

lower ones together. Get that upper tooth loose and they won't come together. Put a little cross-bar to keep it there. His machine is only to move the tooth, not to keep it there.

He did not propose to do anything impossible, but might move the lower molars out with this machine, if he kept it on long enough.

As to hereditary development, he asked to be shown a crooked jaw and he will show crooked teeth. If you have a gothic jaw you have irregular teeth. Show him a placenta ill-formed, and he will show a monstrosity. It cannot be otherwise. So with the teeth. The same law governs the teeth that governs the hair of your head. You must work inside that law of government. In regard to heredity, we find irregularity of the teeth in all races of men. The lower you go the more regular the teeth are. The Australian has more regular teeth than the Congo negro. His teeth resemble those of the chimpanzee and gorilla, both as to the form of the jaw and the teeth, more than do those of the European; they have less fissures. The molars have very few fissures; indeed, only indications. The enamel is strong, and the teeth do not decay. The upper jaw rather approaches toward the ourang's. The higher we come the more mixed the races become. In America, Africa and Asia you find innumerable and diverse races. The different races must have crossed, and, in crossing, got imperfections as well as perfections. The European races are mixed probably more than any of the others.

(TO BE CONTINUED.)

Editorial.

AN ITEM OF INTEREST.

The editor of one dental journal raises his hands and eyes in holy horror over the enormities of tobacco smoking, but we cannot avoid the impression that he sometimes neglects the weightier matters of the law. He seems to be a kind of freebooter among the journals, and lays violent hands on whatever strikes his fancy. What would

be thought of the morality of a man who, having borrowed (sometimes without permission) an implement from his neighbor, should immediately erase the owner's name, change its form a little, paint it over with another color, and then stoutly claim it for his own? But that is precisely what *Items of Interest* has many times done. Not, of course, with larcenous motives (we do not wish to be understood as charging willful turpitude), but with the object of fitting to its narrower pages articles that have cost their rightful owners both time and money, and which he has no legal or moral right thus to mutilate. Shall we particularize?

The March number contains such an one, which was the legitimate property of this journal. It is mutilated, and disguised, and then appropriated without so much as "thank you."

The same number contains an article which, according to the custom that obtains among journals, is claimed as original, and contributed directly to its pages by the author, Dr. C. S. Chittenden, of Hamilton, Ontario. It was read before the Michigan State Dental Society in 1862. The grossest injustice is done its author in now placing him before the profession as advancing views which he long ago discarded. If a journal can not present ideas that are less than a score of years old, we ask what is the excuse for its existence? In the name of the whole profession we protest against this reprinting without warrant of the antiquated ideas of men who have since outgrown them, and there are other and more pretentious journals that might not unprofitably ponder thereon. In this day of investigation progressive men are not immovably planted, like posts.

The April number contains an article purporting to be written by "Samuel Welchens, D. D. S., Rochester, N. Y.," and credit for it is given to the "District Dental Society of Rochester." There is not now, and never has been, a "Samuel Welchens, D. D. S.," in Rochester, nor has there ever been any such society as the "District Dental Society of Rochester." In 1875 Dr. Samuel Welchens, of Lancaster, Penn., contributed a paper for a meeting of the dentists of Western New York. Its subject was "The treatment of exposed pulps in filling teeth." It was read by the Secretary, and published

in the *Missouri Dental Journal* nine years ago, and in the long ago deceased *Pennsylvania Journal of Dental Science*, of which Dr. Welchens was at that time the editor. It has been resurrected, revamped, divided, given a new head, and it now makes two fresh, original communications for *Items of Interest*. It was an excellent paper in its day, but has an ancient and fish-like smell as it now appears.

To show that this is not a mere typographical or unintentional error, the May number contains another instalment of the same thing, the same pretended author and society. The second article was taken from this journal without credit, and there is another from Dr. Brophy—but why go on to enumerate instances that are comparatively numberless? We respectfully request that in future, *Items of Interest* will obey the common journalistic law, and respect the property of others. We are quite willing to lend to it anything we have, but we must ask it to refrain from rubbing out the ownership name of the INDEPENDENT PRACTITIONER, from wantonly mutilating our property, and from claiming as its own that which we have bought and paid for.

LEGISLATION.

The villainous abuses of our legislative system came very near a practical illustration during the closing hours of the session of the Legislature of the State of New York. It is notorious that during the hurry and heedlessness of the last days, when nearly every member has some pet scheme to consummate, advantage is taken to push through, without examination, all sorts of questionable bills. The title often gives no idea of the contents, and the whole bill is so drawn as to mislead and deceive those who do read it. Every means is taken to distract attention from it, in the hope that it will get through without challenging enquiry. Such a bill, one that would have quite destroyed the usefulness of the statute regulating the practice of dentistry in the State of New York, and have made it entirely inoperative, was within a hair's breadth of its passage during the last week of the session of the Legislature. The mere accident of a member of the Dental Society of the State of New York,

who knows the devious tricks of legislators, happening to drop into the Assembly Chamber when the bill came up for its third reading, alone prevented its being a law to-day. It had already passed the Senate, and another half-hour would have seen it safely through the Assembly. There was some lively work done to head it off, but fortunately the matter was taken in hand by ex-State Senator Dr. A. M. Holmes, and its reference back to the committee was secured, where it was effectually squelched. But the admirers of our excellent law will in future understand that there are various classes of men who will bear watching, and they will do well to keep their eyes open during the sessions of coming Legislatures. Heedless or indifferent to its effects upon our own citizens, at the mere request of carpet-baggers from other States who were disqualified for legal practice, a legislator who must hold very peculiar views as to his duties to his constituents attempted to make New York a general refuge for quacks by introducing the following bill, which we commend to the especial notice of the profession in Brooklyn:

SENATE BILL NO. 360, INTRODUCED BY MR. DAGGETT.

AN ACT for the relief of certain persons engaged in the regular practice of dentistry.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Any person who was engaged in the regular practice of dentistry within any state of the United States except this State, on the twentieth day of June, eighteen hundred and seventy-nine, and who would have been entitled to registration as a dentist, as provided in the third section of chapter five hundred and forty of the laws of eighteen hundred and seventy-nine, entitled "An act to regulate the practice of dentistry in the state of New York," had he been so practicing within this state, and who shall make and file with the clerk of the county in which he registers his affidavit to the effect that he was so engaged in such practice of dentistry, may, within sixty days after the passage of this act, cause his name, office and post-office address to be registered in the county clerk's office in the manner provided in said third section of said act, and such registration shall have like force and effect as if made within the time prescribed by said section of said act, according to its provisions. Any person who shall willfully make and file a false affidavit for the purpose of procuring such registration shall be subject to conviction and punishment for perjury.

SEC. 2. This act shall take effect immediately.

DENTAL EDUCATION.

We publish the article under this head after holding it over a month, because such specific charges have been challenged on all sides, and because it comes from a responsible source. Concerning the matter animadverted upon, the editor and publishers of this journal have no personal knowledge. If there be misstatements, our pages are open for their disproof. But as they are matters of common report, we think it in the interest of all parties that a chance should be given to those who are accused of irregular practices to meet the charges in an open manner, rather than that they should be circulated covertly, with no opportunity for defense. More than one college is charged with graduating students irregularly, and we hope that those who have any personal knowledge of cases will come to the front with the testimony, and give the accused an opportunity to justify themselves if they can.

Of some of those who are charged with receiving diplomas irregularly issued we *have* personal knowledge. Drs. Barlow and Meeker are known to be competent practitioners and reputable men. We do not understand that they, or the others whose names are mentioned, are charged with anything dishonorable. But their names could not be withheld without suppressing the article entirely, and that we do not think the best interests of the profession, or indeed of the Baltimore college, demand.

PERSONAL.

It will be a gratification to the many admirers of Dr. Miller to know that he sails from Bremen by the steamer Eider, June 11th, for a brief visit to his native land, and will be due in New York about June 20th. He will remain in this country only about a month.

It will give the readers of the INDEPENDENT PRACTITIONER yet greater pleasure to know that Dr. Miller is now permanently connected with this journal as one of its publishing company, and that henceforth his interest in it will be personal as well as professional. As for the other members of the company, the heartiness with which

they welcome him to an honorable position among the dentists of America, where he most desires to feel that he has a place, and the satisfaction with which they greet him as a responsible co-laborer, can be readily appreciated by readers of the journal, and will be made manifest to him when he arrives among us.

NEW YORK STATE SOCIETY REPORT.

The sixteenth annual meeting of the Dental Society of the State of New York was of more than usual interest. The attendance was good, and some of the papers read were of permanent value. We are unable to commence the publication of a stenographic report this month, but next month will present the prize-essay of Dr. Frank Abbott, together with a portion of the report, and this will be followed by the remainder as fast as space will permit.

A full stenographic report of the meeting of the Illinois State Dental Society is necessarily deferred also, because of the illness of the reporter, who is not able to write out his notes.

DEFERRED.

We have marked for our pages a number of interesting extracts from that valuable journal, "Archives of Pediatrics," but they have so far been crowded out by the press of other matter. If any one wishes to see them before we can reproduce them, as well as to get much other information of value to those practicing dentistry, let him subscribe for the journal. It is now published in New York.

OUR BOOK TABLE.

ELEMENTARY PRINCIPLES OF ELECTRO THERAPEUTICS ; *for the use of Physicians and Students. One hundred and thirty-five illustrations:* by C. M. HAYNES, M. D. Chicago, Ill.: The McIntosh Galvanic and Faradic Battery Co. Octavo, pp. 426.

The use of electricity has become a part of the established practice of medicine, and the practitioner who has not some knowledge of its application is but partially fitted for his duties. In the light

of the latest investigations, which seem to demonstrate that electricity is but one of the manifestations of the unit force, and that, save in its mode of expression it is identical with light, heat, nervous energy, etc., its importance as a curative agent may be comprehended. If, under the proper conditions each of these modes of force may be transformed into the other, electricity may be as essential to normal function as light, or heat, and an understanding of its proper application is a part of the necessary schooling of the successful physician.

In surgery, too, electricity is playing no unimportant part. The removal of *nævi* and many forms of neoplasm is often most readily performed by electrolysis, while in the treatment of strictures and other diseases of the urinary organs a good electrical apparatus has become essential. In dental medicine and surgery there is frequent necessity for its use, so that a text-book for reference and instruction should form a part of the library of every practitioner.

The book under notice amply fulfills every requirement. Although published by a manufacturing company, it is not disfigured by advertisements of their wares, but is devoted to the legitimate purpose of giving scientific information. The first part contains a succinct account of electrical laws so far as they are known. The different currents are explained, and their use in medicine illustrated, with explicit directions for their application. The principles that govern electrolysis are made plain, and the whole system of the therapeutics of electrical science is placed within the comprehension of all. There is a complete vocabulary of the scientific terms used, and altogether the book is one that can be heartily recommended to the profession.

NOTES ON DENTAL PRACTICE. By HENRY C. QUINBY, *Licentiate in Dental Surgery of the Royal College of Surgeons in Ireland, and member of the Odontological Societies of New York and London*. Philadelphia: The S. S. White Dental Manufacturing Co. 1884. Octavo, pp. 202.

This is another of the many works on dental practice that have been offered to the profession within a few years. It is plain and practical in matter, clear and concise in language, while in scope it treats of the mechanical aspect of most of the common diseases that

the dentist is likely to meet in practice. The book is extremely provocative of thought and reflection, for the author is a man of positive views, and his fearlessness in the expression of them indicates one who is thoroughly convinced of the correctness of his position. But there is scarce a dentist of like settled and confident opinions who will not find on almost every page something to antagonize, and a reading of the book is like holding an argument with an intelligent and acute adversary. The benefits to be derived from its perusal greatly transcend those gained by the reading of an author who complacently pursues the regular beaten track of the common-place—that is, if he has his own ideas of dental practice—if he has not, the work is not intended for his eyes.

We have said that the book speaks of the mechanical treatment of dental diseases. There is very little of pathology in it, and yet less of therapeutics. Indeed, the author states in the preface that he has not attempted any physiological research, and he has perhaps placed himself beyond the reach of criticism in this respect by his naive confession. And yet we cannot comprehend how dental *practice* can be considered without taking into account the therapeutical agents that are necessary, absolutely essential, to its conduct. A successful practice cannot be carried on with forceps, excavators, pluggers, and other mechanical tools alone. In this respect, then, the book seems to an American practitioner at least lamentably deficient. We wish, too, that he had amended his nomenclature, and not called a tooth-pulp the “nerve.”

We might go on interminably finding fault, for opportunities would not be lacking, but despite this must acknowledge that we like the sturdy positiveness of the man, and a perusal of his book has benefited us more than would the reading of an armful of the milk-and-water truisms of authors who fear to speak their mind lest they be antagonized by some one. But its profitable reading presupposes a fair knowledge of the subjects of which the author speaks.

The book is handsomely printed and bound, as indeed are all the works published by the S. S. White Dental Manufacturing Co.

The remainder of “Our Book Table” is necessarily deferred.

Current News and Opinion.

WESTERN MISCELLANY.

The thirteenth annual meeting of the Kansas State Dental Society was held at Hiawatha, Kansas, commencing May 6th, and continued three days, in joint session with the Nebraska State Society.

Both societies were well represented, and the meetings were full of interest. The officers elect for the Kansas Association are as follows :

President—Dr. J. A. Young, Emporia.

First Vice-President—Dr. W. M. Shirley, Hiawatha.

Second Vice-President—Dr. A. C. Schell, Kansas City.

Secretary—Dr. C. B. Reed, Topeka.

Treasurer—Dr. A. H. Thompson, Topeka.

The next meeting will be held at Topeka, Kansas, commencing the first Tuesday in May, 1885.

Dr. J. W. Chaddick, of Nebraska City, was elected President of the Nebraska Society. Your correspondent failed to get the names of the other officers elected.

The next meeting of the Nebraska Society will be held at Lincoln, commencing the third Tuesday in May, 1885.

Dr. L. P. Meredith, of Abilene, Kansas, is no more. No particulars concerning his death can now be obtained, further than that it was the result of a severe cold, contracted while out on a hunting expedition.

Dr. Meredith was in many ways a very remarkable man. His fine personal appearance and modest but dignified manner, coupled with scholarly attainments, made him many friends and admirers wherever he went. As a writer upon dental and other subjects he was well known to a majority of the profession.

He formerly lived at Cincinnati, O., where he enjoyed a very lucrative practice, and was regarded as a very excellent operator, but his health failing, he went west, locating at Abilene, Kansas, where he for a time engaged in the book and stationery business, paying but little attention to dentistry, except to keep himself posted through the medium of its journals, and occasionally to perform an operation for some personal friend.

Although not actively identified with the practice of dentistry, he never lost interest in its progress, and since his removal to Kansas had been a regular and faithful attendant upon the meetings of the State Association, of which he was President during the year 1882-3. A good man has gone.

PERSONAL.

Dr. J. D. Patterson, for the past fourteen years located at Lawrence, Kansas, has removed to Kansas City.

Dr. D. J. McMillen, formerly of Brunswick, Mo., and the present President of the Missouri State Association, has also located at Kansas City.

"DENTOS."

WHAT DOES IT MEAN?

The last number of the *Odontographic Journal*, on its congratulatory page, after referring to its steady advancement from a comparatively obscure publication to that of a first-class and popular dental quarterly, and crediting its success to the energy, ability and good management of its editor and conductor, makes the following extraordinary statement: "The reading matter of the journal will, as heretofore, be in charge of the present conductor, who will say and permit others to say in its pages just what in his judgment should be said, with the consent of the publishers."

A curious sort of combination this of trust and censorship, and a strange show of consistency. An editor and "conductor" whose faultless "management" is acknowledged in fitting terms as almost the sole cause of the success of a journal, is permitted to exercise his individual judgment concerning its reading matter *with the consent of the publishers!* Is this another "hard hit"? Perhaps in these precarious times the publishers feel that it is not prudent to give their editor too much play of his *Line*, lest things get entangled.

F.

A. D. S. E.

The American Dental Society of Europe will hold its next annual meeting at Vevey, Switzerland, beginning Tuesday, August 18th. Members of the profession are cordially invited to be present.

W. D. MILLER, Chairman of Ex. Com.

MISSOURI.

The twentieth annual meeting of the Missouri State Dental Association will be held at Sweet Springs, Saline Co., Mo., commencing Tuesday, July 8th, and continuing four days. Reduced railroad and hotel rates have been secured, and a large attendance is expected. Every member of the profession is cordially invited to attend. For programmes and other information address Dr. G. W. Tindall, Chairman Executive Committee, 1108 Main Street, Kansas City, Mo.

G. W. TINDALL, }
S. B. PREVOST, } *Committee.*
E. E. SHATTUCK, }

SIXTH DISTRICT DENTAL SOCIETY OF NEW YORK.

The Sixth District Dental Society held its fifteenth annual meeting at Binghamton, on Tuesday, May 6th. The following officers were elected:

President—M. D. Jewell, Richfield Springs.

Vice-President—C. E. Dunton, Cazenovia.

Rec. and Cor. Secretary—E. D. Downs, Owego.

Treasurer—Frank B. Darby, Elmira.

Censor—A. M. Holmes, Morrisville.

Delegates to State Society for four years—M. D. Jewell, Richfield Springs, E. D. Downs, Owego. E. D. DOWNS, D. D. S., Sec'y.

MASSACHUSETTS DENTAL SOCIETY.

The nineteenth semi-annual meeting of the Massachusetts Dental Society will be held at the Hawthorne Rooms, 2 Park Street, Boston, Mass., on Thursday and Friday, June 5th and 6th, 1884, commencing at 11 o'clock Thursday morning.

W. E. PAGE, Secretary.

CHANGE OF DATE.

As the dedication of the Buckingham Monument takes place at Hartford, June 18th, the meeting of the Connecticut Valley Dental Society has been changed from June 18th and 19th to June 19th and 20th, at Savin Rock, New Haven, Conn.

W. F. ANDREWS, Secretary.

(6) Will some one kindly suggest, through your columns, a remedy for the following case?

Mr. L—, a middle aged man possessing usual health, has the habit of grinding his teeth during sleep only. The vitality of two of them has already been destroyed, and much injury done to others by breaking down strong walls from fillings.

T. A. K.

(7.) A professional friend recently suggested that I line the cervical walls of large approximal cavities in molars and bicuspid with Robinson's fibrous tin. I have tried it and find that it works beautifully. Is there any objection to placing the two metals together in the same cavity, on account of galvanic or chemical action?

S. D. C.

(8.) A statement was once made by a gentleman connected with one of the dental societies in New York, that "it is impossible to devitalize a tooth-pulp by the use of arsenious acid in any case where camphor has been previously applied." Will the party who made this statement please give his experience in this direction?

D. F. M.

(9.) What peculiarity does the so-called "Electric" gold possess, and why so called?

L.

(10.) I lately noticed in a medical journal a recommendation of the method of administering an anæsthetic *per rectum*. Is it possible to produce the effects in that manner, and, if so, what is the *modus operandi*?

INQUIRER.

Answers.—J. L. D. (No. 1.) will find the answer to his question upon page 180 of the April No. of this Journal. I believe that the cause of the acute periostitis in such cases arises from the admission of air containing septic organisms into the pulp chamber. The remedy is in the so-called "Listerian" system. Open the pulp chamber under aseptic conditions. Prevent the entrance of septic germs, and the after treatment is easy.

C. F. W. B.

Tell J. S. (No. 4.) to try *antimonium crudum*, 30th trituration. Sometimes *mercurius vivus* is preferable.

C. W. S., St. Louis.

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
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- ☞ Taken internally in teaspoonful doses, Listerine arrests the fermentative eructations of dyspepsia, so often associated with or resulting from oral disease.
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- ☞ For cleansing and in operations the dilution has been varied from one to twenty parts water and one part **Listerine**, according to conditions and taste.
- ☞ Note its value as a menstrum, its miscibility with glycerine, etc.

The value of Listerine has been thoroughly determined by very many of the Dental Profession, and a pamphlet embodying its Formula and Reports from the following and many other well-known dentists will be forwarded gratis upon request and the mention of this journal.

W. H. EAMES, D. D. S., St. Louis.
 C. W. SPALDING, M. D., D. D. S., St. Louis.
 HENRY S. CHASE, M. D., St. Louis.
 J. TAFT, M. D., D. D. S., Cincinnati.
 GEORGE WATT, M. D., D. D. S., Xenia, O.
 H. A. SMITH, M. D., D. D. S., Cincinnati.
 A. O. RAWLS, D. D. S., Lexington, Ky.
 W. C. WARDLAW, D. D. S., Augusta, Ga.
 J. B. PATRICK, D. D. S., Charleston, S. C.
 T. W. BROPHY, M. D., D. D. S., Chicago.

E. T. DARBY, M. D., D. D. S., Philadelphia.
 C. N. PIERCE, D. D. S., Philadelphia.
 JAS. TRUMAN, D. D. S., Philadelphia.
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307 Locust Street, ST. LOUIS.

To the Dental Profession.

GENTLEMEN :

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

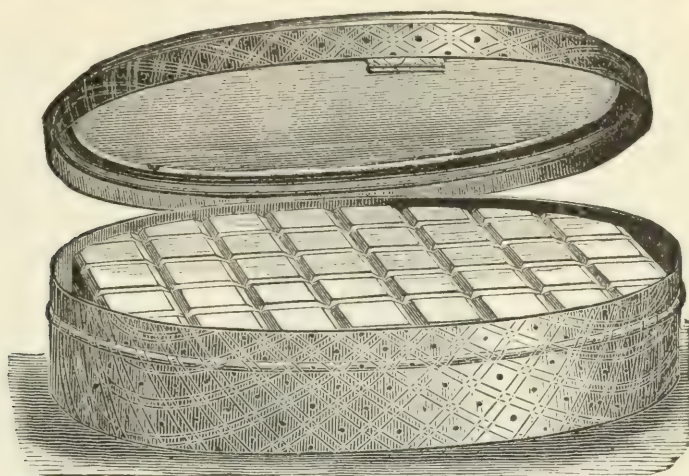
I. W. LYON, D.D.S.;

61 CEDAR ST., NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

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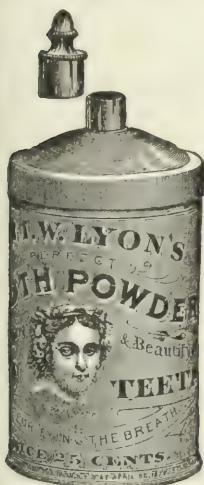


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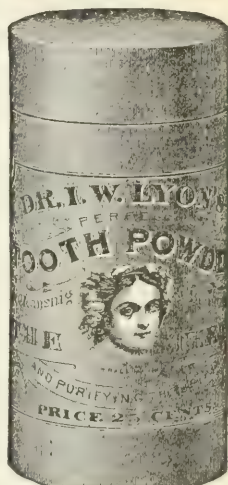
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This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

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Heat expands metallic substances. When an alloy has been amalgamated in the palm of the hand the operator will observe that heat is evolved. Now, if this is allowed to depart (said Dr. Wheldon Foster, of Baltimore, in criticism of an essay by us), if this heat is allowed to depart previous to its introduction into the cavity, it will not then contract; for crystallization at low temperature is not a process of contraction. A familiar example is the freezing of water and the consequent bulging and bursting of the containing vessel or pipe.

The following named gentlemen endorse it, and we use their names by permission:

| | |
|---------------------------------------|--|
| Dr. JOHN B. RICH,.....NEW YORK. | Dr. E. PARMLEY BROWN,....FLUSHING, L. I. |
| Dr. W. D. TENISON,....." " | Dr. J. BOND LITIG,.....NEW YORK. |
| Dr. C. S. STOCKTON,.....NEWARK, N. J. | Dr. WM. F. DAVENPORT,....." " |

And many other prominent Dentists.

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Oliver B. Dawson

NEW YORK, July 16, 1883.

DR. OLIVER B. DAWSON, DEAR SIR:—I have received a large number of letters of inquiry in relation to your White Alloy. These letters remain unanswered for the reason that I have not had the time to reply to them. But it would give me great pleasure to express in some way, the satisfaction I have experienced in the use of the Amalgam made with it. In the proportions in which I use it, one-fourth Mercury to three-fourths Alloy, it produces the best plastic filling I have ever constructed. Becoming very hard and tough, it is susceptible of receiving a high polish, and does not shrink under severe tests. In color it is a very light grey, which does not change in the mouth. Possessing, as it certainly does, in an eminent degree, the above valuable qualities, I consider it the best alloy I have ever used.

Very respectfully,

JNO. B. RICH.

AMERICAN DENTAL M'FG CO.,
Broadway, Cor. 37th Street, - - NEW YORK, N. Y.

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Original Communications.

FERMENTATION IN THE HUMAN MOUTH.

THE FUNGI OF DENTAL CARIES; THEIR PURE CULTIVATION AND
EFFECT UPON LOWER ANIMALS.

BY DR. W. D. MILLER, BERLIN, GERMANY.

(Continued from page 291.)

In the May number of the INDEPENDENT PRACTITIONER will be found the description and illustrations of two species of micro-organisms which I had, up to the first of March, 1884, obtained from carious dentine. These species I isolated by inoculating culture liquids with very small pieces of carious dentine, taken from near the border of the normal tissue. If the fungus was not at once obtained in the pure state, a second culture tube was inoculated after the method of fractional culture, with a minimum portion of the first, and so on.

It soon, however, became apparent that the capture of these two species by no means ended the work; on the other hand, new forms continually presented themselves, and in order to be able to determine definite characteristics for each species, resort was had to the culture on plates of gelatine prepared with beef extract, calf's broth, malt decoction, etc.

The beef-extract gelatine, for example, I prepare as follows: 200 c. c. water + 3,0 beef extract + 3,0 sugar, are first neutralized, then slowly boiled for five minutes, and filtered (filter and all other

vessels, of course, sterilized). After cooling, 8,0 of the finest gelatine is added and gradually heated till the gelatine is dissolved ; it is then cleared with the white of an egg, and all together kept at the boiling point for about five minutes, stirring constantly to prevent burning ; it is then passed through a filter, surrounded by a bath of boiling water, into glass tubes with cotton stoppers (both sterilized), and kept in a refrigerator. When to be used it is melted in warm water and poured upon sterilized cold glass plates, which may be m. 0,15 long by m. 0,07 wide, and placed in the moist chamber. The layer of gelatine should be about two m. m. thick.

Suppose now we have a culture containing different species of fungi, and we wish to separate them. A thin platinum wire with one end melted into a glass rod is sterilized in the flame of a bunsen burner, and on cooling dipped into the impure culture and lightly drawn across the surface of the gelatine ; the fungi which adhered to the platinum wire are thereby scattered in a row upon the surface of the gelatine, and in a short time we will find that at certain points in the row one form of fungus has developed, and at other points other forms. Now if we take upon the end of our platinum wire a small quantity of fungi from one of these points and draw it across the surface of a second plate, we will, in parts of this line, invariably obtain a pure culture of one of the species in the original impure culture, nearly every species being distinguished by some characteristic in the form which it takes in growing, and in its action upon the gelatine. Having obtained a pure culture in this manner, test-tubes containing gelatine are inoculated with it. In these it may be kept in a pure state for weeks, or months, while the plates are always short-lived.

The gelatine method of pure culture has one great disadvantage in the low melting point of the gelatine. Twenty-four to twenty-



Fig. 1

five degrees Centigrade is the highest temperature to which they can be exposed without danger of melting, and this, to fungi which are accustomed to a temperature of thirty-seven degrees Centigrade, is not always a matter of indifference. I have succeeded in isolating three species, besides

the ones described in the May number of this journal, and, for the purpose of distinguishing them only, I will designate them by the Greek letters γ , δ and ϵ . These fungi are shown in Figs. 2, 3 and 4. In Fig. 1 I have reproduced the fungus described on page 226 as a caries fungus, for the sake of comparison. When the species α , γ and δ are isolated, it is not difficult to tell one from the other; when, however, they are mixed together, it is next to impossible to determine which is which, and especially is this the case with α and γ . Their modes of development on gelatine are, however, so different, that we possess therein a ready means of distinguishing between them.

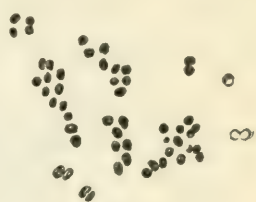


Fig. 2

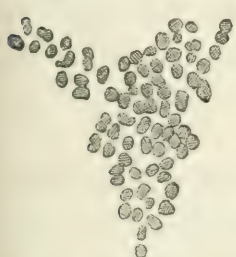


Fig. 3

The α fungus, *sparingly* inoculated into gelatine tubes, presents in a few days the appearance which I have attempted to represent in Fig. 1a. It may be compared to a bunch of grapes, which presents all gradations from the fully developed berry to the little green one; the masses of fungi are globular or ovoid, exceedingly fine, and semi-

transparent, presenting altogether a strikingly beautiful culture, which it is impossible to even approximately represent by drawing. It furthermore forms a button upon the surface of the gelatine; the latter becomes softened but not liquefied. On the plates it presents soft, milky ridges or knots, raised sometimes a m. m. above the surface of the gelatine, and obtaining a width at the base of three to six m. m. The



Fig. 1a

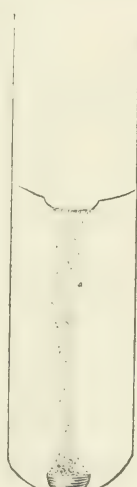


Fig. 2a



Fig. 3a

γ fungus differs from all other fungi that I have yet found in decaying dentine, in that it completely liquefies the gelatine. The

culture tubes present, therefore, a funnel-shaped area of liquefied gelatine, while the fungi themselves fall to the bottom of the funnel (see Fig. 2a).

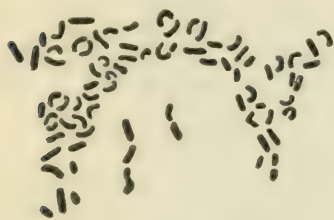


Fig. 4

This fungus forms furrows in the plates, and if the plate is turned on its edge the whole mass of fungus flows from one end of the furrow towards the other, or slides quite off the plate.

The δ fungus (Fig. 3) forms completely *opaque* masses which may have a slight yellowish tinge, provided the gelatine itself is yellowish. It has a small surface growth, and liquefies the gelatine only to a slight extent. In cultures on plates which are two or three days old, the row of fungus appears to lie in a trough, or depression in the gelatine. It does not move, however, when the plate is turned on edge (see Fig. 3a).

For the fungus of Fig. 4 I have not yet been able to establish definite peculiarities of growth. As far as my observations have at present extended, it differs from that of Fig. 3, in that it is almost entirely wanting in surface growth, and forms colorless masses, even in colored media. It does not liquefy the gelatine. Viewed by transmitted light it appears to have a bluish tinge, and a slight opalescence. It grows, however, very slowly, and I have consequently as yet been unable to establish certain and definite characteristics for it. The fungus described on page 227 grows still more slowly at gelatine temperature, and I cannot at present give any microscopical features by which cultures on gelatine may be distinguished.

The most important feature connected with all these fungi, especially the coccus forms, is that they possess a ferment activity; in other words, they are capable of producing acid out of sugar, or, in the human mouth, out of starch, by the aid of the diastatic action of the saliva. They may consequently all be looked upon as factors in the decay of the teeth. I would not venture to say that the *a* fungus is more concerned in the process of caries than all the rest together; nevertheless, such is the constancy with which I

have found it, that if any one else should make the assertion I would have no reason for contradicting him. Cultivated in liquid substrata, none of them form films or skins upon the surface of the liquid, but powdery or fleecy precipitates upon the bottom and sides of the vessel. None, so far as I have observed, produce an evolution of carbonic acid in solutions containing sugar, nor do they appear to suffer when the access of oxygen is restricted.

A question of great importance, not only for dentists but for general physicians, and, in fact, for everybody, is that relating to the possible pathogenic nature of these fungi. We find in the works of Leyden and Jaffé, Haussmann, Bollinger, James Israel, etc., sufficient ground for the statement that "these fungi, in all parts of the human body which they reach, can play the same malignant role as upon the teeth." Gangrene of the lungs, abscesses of the mouth and throat, chronic pyæmia, etc., etc., have by various authors been ascribed to the action of the fungi of the human mouth. Raynaud, Lannelongue, and Pasteur produced what they called *maladie nouvelle* by inoculating rabbits with the saliva of a child bitten by a mad dog. And A. Fraenkel has in a number of cases produced sputum-septicæmia by inoculating rabbits with his own saliva.

We ask ourselves then the question: may not many of our obscure cases of infectious disease which now and then appear after extraction, or other dental operations, and which are, without further examination, attributed to the unclean instruments or hands of the dentist, be the result of an infection produced by micro-organisms in the patient's own mouth? If a man's saliva contains organisms which, when brought into the blood of a rabbit, occasion death in twenty-four hours, would it be a matter of no consequence to produce so large a wound in his mouth as that caused by the extraction of a tooth? For the purpose, if possible, of throwing some light upon this question, I have undertaken a series of experiments for determining whether the organisms which are most commonly found in the human mouth possess the power of producing death (by septicæmia or otherwise) by inoculation. These experiments, as well as the others recorded in this article, I

have in fact only begun. My absence from home, however, prevents my carrying them on during the summer months, and I have determined, therefore, to present the results which I have already obtained, few and imperfect as they are.

The inoculations have thus far been performed on three rabbits, one rat, and six white mice. They were made partly with a mixture of the two fungi α and γ , and partly with saliva which had been kept in sterilized calf's broth for fifteen hours, at blood temperature.

Each rabbit received 1 c. c. of the infected liquid, injected directly into the lung or abdominal cavity; the rat 0,2 c. c., and the mice 0,1 c. c.

Exp. 1. Small rabbit inoculated with 1 c. c. in the abdominal cavity.

In the course of a few hours the rabbit appeared evidently ill; refused to eat, and remained quiet in the corner of the cage. In twenty-four hours diarrhœa appeared, with a slight elevation of temperature. These symptoms increased during the next day, till fifty hours after the time of inoculation it was found at the point of death. The examination showed the blood to be almost entirely free from organisms, and no indication of septicæmia. Living fungi were found, however, in the abdominal cavity, and a large part of the right lobe of the liver was completely riddled with masses of fungi; also in the fæces were found enormous numbers, which, morphologically, were identical with those in the liver, their entrance into the alimentary canal from the liver being easily accomplished. I unfortunately neglected, however, to establish their identity by the proper cultures.

Exp. 2. Rabbit inoculated as in *Exp. 1.*

The animal manifested a slight indisposition on the second day, from which it soon recovered.

Exp. 3. Rabbit inoculated in the right lung with saliva which had been kept in sterilized calf's broth for fifteen hours, at thirty-seven degrees Centigrade. No effect apparent.

Exp. 4. White rat, injection in abdominal cavity.

The animal remained well.

Exps. 5-11. Seven white mice; five inoculated in abdominal cavity with α and γ fungi; two in the lungs with saliva in calf's broth. Of the former two died at about the fortieth hour under the same symptoms as in Exp. 1. Great numbers of fungi were found in the abdominal cavity, which by culture on gelatine proved to be the γ fungus. A number of colonies were likewise found in the liver. Microtome sections of the liver of the rabbit stained in Fuchsine show, when examined under the microscope with sufficient light to drown the tissue, a distribution of the fungi very similar to that often seen in the outermost layers of carious dentine. (See Fig. 5.) Of course, no definite conclusion can be drawn from a few experiments. They are, however, sufficient to show that these fungi certainly do possess a pathogenic

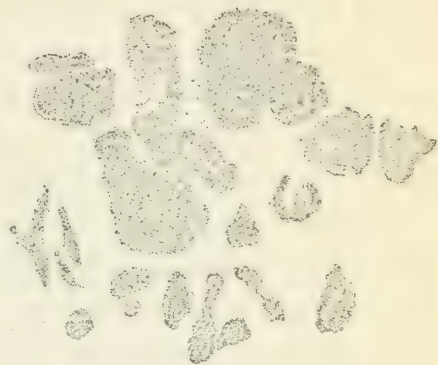


Fig. 5

character, and when brought into other parts of the human body may be able, under predisposing conditions, to produce disastrous results. Especially the continual swallowing of these fungi in great numbers may, by their ferment activity alone in the course of time, produce very serious derangements of the stomach and alimentary canal, since the small percentage of hydrochloric acid in the stomach, even in the presence of the normal quantity of pepsin, is not sufficient to devitalize them. It was with a certain degree of satisfaction that I have failed thus far to find the coccus of sputum-septicæmia in my own saliva. It is, however, very desirable that experiments should be made with the saliva of many persons, for the purpose, if possible, of determining in what proportion of cases this fungus is present.

Messrs. Underwood and Milles have endeavored to repeat some of my earliest experiments in the production of artificial caries, but under those very abnormal conditions against which I entered warning in the *INDEPENDENT PRACTITIONER*, page 229. Failure was the necessary result. They performed, further, a very elabor-

ate experiment, lasting six months, in which the baths became so putrid and offensive that "they quit the experiment with relief." They naturally produced no caries, thereby furnishing an admirable confirmation of the fact to which I have so often called attention, that it is impossible to produce even a trace of caries by putrefaction alone. They tried a third experiment, putting the fungi under such abnormal conditions that they could not produce acid, and of course failed again, once more confirming the fact that I have long since established, that we can have no caries without acid. With these experiments they risk the statement that artificial caries is probably an impossibility. The production of artificial caries is a *fait accompli*, and to deny its possibility is only to endanger the reputation of him who denies.

They state further that they can find no softened dentine which does not contain micro-organisms. This, however, is contrary to the experience of a great many American microscopists, and, moreover, as I have elsewhere stated, I shall take with me to the next meeting of the American Dental Society of Europe several hundreds of specimens of carious dentine, and be ready to show the areas of softened, non-infected dentine, on any one or on all of them.

Messrs. Underwood and Milles understand me, in the third place, as being of the opinion that all the micro-organisms connected with caries of the teeth are only different forms of one fungus. The readers of the INDEPENDENT PRACTITIONER know better. I have stated simply that *one* of the many fungi found in the human mouth in connection with caries of the teeth, may produce different forms of development. This is the fungus which I have designated by the prefix β . It is scarcely necessary to add that I am always prepared to prove its existence microscopically, as well as on the authority of many of the best mycologists of Germany.

No one, I think, will deny that within the last few years I have done a large amount of work, and contributed some evidence towards the solution of the problem of dental caries. The amount of material dealt with, and the ground gone over, have been so extensive that it has been absolutely impossible, with the greatest efforts,

to remain as long by each step as would have been desirable. It may be, therefore, that at some points the subject has not been presented with sufficient clearness or decisiveness; it may be, too, that at some points the conclusions have been faulty, since I make no pretension to infallibility. Time will show whether this is the case. At present I know of no important change which I could make, if I were to re-write all my contributions of the last three years.

I desire to give, in closing, a very short resumé of the work which I have accomplished.

1. I convinced myself by the examination of some thousands of slides of carious dentine, that micro-organisms were always present, and that they, without any doubt, were the cause of various anatomical changes which were found to take place in the structure of the dentine during caries. (Here, of course, the question of priority does not suggest itself; Leber and Rottenstein, as is well known, were the first to give definite expression to this fact.)

2. I proved, at the same time, that the invasion of the micro-organisms was not, in the majority of cases, simultaneous with the softening of the dentine, but that large areas of softened dentine could be found that contained no fungi. Of all those who examined my preparations in America, no one, whatever his theory, ever once denied this fact. I concluded from this that the softening of the dentine went in advance of the invasion of the organisms.

3. I determined by analyses of masses of carious dentine, sufficiently large to give reliable results, that the softening of the dentine is of the nature of a true decalcification. That the decalcification of the outer layers is almost complete, and diminishes in degree as we advance towards the normal dentine. Furthermore, that the same relations maintain in dentine softened in a mixture of saliva and bread, or in weak organic acids; also, that in a mass of carious dentine the lime-salts had been removed to a much greater extent than the organic matter.

4. I maintained from the first that the softening of the dentine was produced by acids, for the most part generated in the mouth by fermentation. I had, however, no direct proof of this.

5. I *proved* that fungi exist in great numbers in the human saliva and in carious dentine, which have the power to produce acid under conditions which are constantly present in the human mouth. I determined this acid, for one of the fungi, at least, to be the ordinary ferment, lactic acid.

6. I produced caries artificially, which under the microscope cannot be distinguished from natural caries, by subjecting sound dentine to the action of these fungi in fermentable solutions.

7. I determined the influence of various antiseptics and filling materials upon the fungi of caries.

8. I isolated various forms of these fungi, and determined *in part* the conditions most favorable to their development, their characteristic reaction upon gelatine, their physiological action, their effect when inoculated into the system of lower animals, and their possible connection with certain obscure diseases generally attributed to the carelessness of the dentist.

My continual search has been after facts, and such facts as I have obtained I have presented before the profession, never putting before them either theory or speculation, nor anything which was not the result of severe and continued labor, and in this spirit I propose to prosecute this work, as well as any other that I may undertake in the interest of the profession.

BERLIN, May 21, 1884.

NOTE.—Since writing the above, I have succeeded in producing death by septicæmia of both mice and rabbits, by injecting into the lung saliva from the mouth of a perfectly healthy person.

PROPER MEDICAL EDUCATION.

In a paper read before the Medical Society of the State of Pennsylvania, May 14th, Henry Leffman, of Philadelphia, said:

“Higher specialization is the necessity of the time. The success which has been attained by dentistry shows that other departments, such as otology, laryngology, etc., might with advantage be pushed independently. There would be no reasonable objection to establishing the degrees of otology, ophthalmology, and so on, commensurate with the degree of Doctor of Dental Surgery.”

MICROSCOPICAL STUDIES UPON THE ABSORPTION OF THE
ROOTS OF TEMPORARY TEETH.

BY FRANK ABBOTT, M. D.

WHITNEY MEMORIAL PRIZE ESSAY. READ BEFORE THE DENTAL SOCIETY
OF THE STATE OF NEW YORK, AT ITS SIXTEENTH ANNUAL
MEETING, MAY 14 AND 15, 1884.

The fact that temporary teeth, previous to the appearance of the permanent ones, are considerably reduced in size, often lacking roots, often consisting only of a thin shell, and exhibiting a corroded festooned surface, has long since attracted the attention of observers. It has never been doubted that a persistent, though graded, irritation causes the absorption; but what the real cause of this irritation is we cannot tell. The idea that in all cases the pressure of the growing permanent tooth is the direct cause must be abandoned, since clinical observation shows that the absorption of a temporary tooth may take place though far distant from the permanent one; nevertheless, we maintain that the growth of the latter, indirectly at least, causes the irritation, and consequent absorption.

The assertion of Tomes that it is due to the presence of freely vascularized papilla does not explain the decrease of the dental tissues, for the papilla is nothing but medullary tissue, such as we meet with in any part of the organism where one tissue is about to change into another. Such a papilla can be the cause of the absorption, as well as its result. Another assertion, that the medullary cells eat out the dental tissues by their active growth, or by their ameboid motions, is insufficient for the explanation of the loss of the lime-salts in the dental tissue, the presence of circular or semi-circular excavations and bays, so characteristic of the melting process of the cementum and dentine of deciduous teeth.

Since we know that pieces of dead bone or ivory may be absorbed with figures similar to those found on the surface of temporary teeth, the idea possibly becomes admissible that, owing to the presence of an acid, first the lime-salts are dissolved out within

certain territories of the dead bone tissue in a merely chemical or passive way, whereupon the soft medullary tissue penetrates the spaces thus established. Quite different, however, will be the conception of this process if we bear in mind that the temporary teeth, as well as the permanent ones, are made up of living tissues, and an active participation of these tissues must be expected in the process of transformation of the dental into that of medullary tissue. As the process of absorption is closely allied to the process of inflammation, and active changes of the dental tissues have been proven to follow inflammation beyond any doubt, we may *a priori* expect such changes of the bone tissues of the temporary teeth in the process of absorption also. I shall try to prove in this paper that such changes really do occur. In the light of the most advanced modern views concerning the structure of the dental tissues, we consider cementum, dentine, and enamel as endowed with properties of life, or, in other words, as pervaded by living matter in the shape of an extremely delicate reticulum. In this view not only the cement corpuscles and their coarser offshoots contain living matter in the shape of so-called "granular protoplasm," but the whole basis-substance present between the cement corpuscles is alive also, only the minute meshes of the living reticulum holding a gluey basis-substance saturated with lime-salts. In the dentine, not only the tenants of the dentinal canaliculi (the dentinal fibers) are alive, but the whole mass of gluey and calcified basis-substance between the dentinal canaliculi is also living. The same holds good for the enamel, in which the delicate fibrilæ between the enamel prisms have positively been proven to be living matter, but the prisms are pierced by living matter, though the latter has not been demonstrated directly, but indirectly in morbid changes of the enamel. Of the cementum, we know that each cement corpuscle occupies the center of a more or less globular territory of basis-substance. If, therefore, circular fields of absorption appear in the process of inflammation and absorption of the cementum, we can readily trace these territories in following out the portion affected by the process of absorption. But how shall we explain the bay-like excavations in the dentine and enamel so

often seen in reduced temporary teeth, where there is nothing known of territories? Here the first difficulty sets in, due to the lack of knowledge of the history of the development of dentine and enamel. Czermak's interglobular spaces indicate the presence of such territories in the dentine, the presence of which, however, can be proven only after accurate researches in the history of development.

Granted that the dissolution of lime-salts takes place in globular territories in the dental tissues, the next question will be, how do the medullary elements appear in such spaces? Do they migrate or penetrate from without, or do they originate, in part at least, from the living material present in all dental tissue?

ABSORPTION OF CEMENTUM.

The process of absorption of a provisional tooth begins on the cementum of the roots. The latter exhibits before the beginning of this process the features of cementum of permanent teeth. Primarily, the absorption is marked by the appearance of the well-known fields so commonly met with in the process of osteitis, that is, excavations on the surface, either semi-circular or composed of a varying number of semi-circular festoons, all of which are filled with medullary elements, multinuclear bodies, or a delicate myxometa, in part a bony, in part fibrous connective tissue, blending with the adjacent myxometous or fibrous pericementum. The communication of the excavations with the pericementum is either widely gaping or through a narrowed neck on the surface of the cementum. Sometimes, however, in the sections the excavations appear isolated, without any communication with the surface, which latter instance, however, will certainly not entitle us to deny the existence of such a communication on a plane above or below that of the section. In the excavations the cementum is unquestionably reduced first into medullary, afterward into myxometous or fibrous tissue. By closely watching excavations of a more recent date at the periphery of those in communication with the pericementum, we notice that the lime-salts and the basis-substance proper are missing, and are replaced by a uniformly granular

protoplasm, or a varying number of faintly marked medullary elements, each of which may contain a central nucleus. We can trace a gradual change of the tissue of cementum from a dissolution of lime-salts to the appearance of a mass of granular protoplasm, and at last to the formation of medullary corpuscles. The circular shape of the excavation is in all cases undoubtedly due to a dissolution of the lime-salts, and afterward of the basis-substance proper, within the territory of a cement corpuscle. Sometimes we see an enlargement of the lacuna and the cement corpuscle itself, the latter splitting up into a varying number of glistening lumps, which are readily stained by an ammoniacal solution of carmine. In other instances the whole territory of a cement corpuscle is transformed into protoplasm, and the reappearance of such protoplasm is traceable through broad offshoots to neighboring cement corpuscles. In a third instance a varying amount of the territory has assumed a delicate fibrous appearance, caused by an early grouping of the medullary corpuscles into fibrillæ. In neither of these instances will it be doubted that the cement corpuscles themselves, or the living matter held in their territories, have in an active way taken part in the reappearance, first of protoplasm, and afterward of medullary corpuscles. The theory that immigrated medullary corpuscles, or "leucocytes," have replaced the former cement tissue must be abandoned as soon as we can trace a gradual transformation of the tissue of the cementum into medullary tissue. The latter immediately assumes the characteristic features of a myxomatous or fibrous connective tissue, in connection with the pericementum (Fig. 1).

From this point of view there is no difficulty in explaining the appearance of multinuclear bodies, so-called "myelo-plaxes," in the dissolved territories. We know that such formations represent a stage of development of cementum, and they simply reappear as soon as the basis-substance of an already-formed cementum is dissolved or liquefied. In fact, nothing else is required but a reformation of basis-substance and its recalcification, in order to reproduce new bony tissue, such as we often meet with on the periphery of absorbed cementum.

The result of the absorption is, next a myxomatous or fibrous connective tissue freely supplied with newly-formed blood vessels.



FIG. 1.—ABSORPTION OF CEMENTUM.

C.—Cementum, whose corpuscles are in part in a process of division. *F.*—The basis-substance of cementum transformed into a delicate fibrous tissue, in connection with a considerably enlarged and split up cement corpuscle. *M.*—Multinuclear protoplasmic mass, sprung from the cementum after liquefaction of its basis-substance. The large offshoots of this mass show the process of transformation of the basis-substance into medullary corpuscles. *F. C.*—Fibrous connective tissue, the result of the liquefaction of cementum. Magnified 500 diam.

In this tissue an active new formation of bony trabeculæ of bone takes place, characterized by the presence of large and irregular bone corpuscles. The widened socket, or dissolving surface of an absorbing provisional tooth, is not infrequently filled with newly formed bone. The newly formed layer of cementum in part shows circular fields (territories) of bone tissue, each of which may contain a varying number of bone corpuscles, or there is a uniform reduction of the original cementum, the boundary of which is

made up by regularly arranged medullary corpuscles, so-called "osteoblasts."

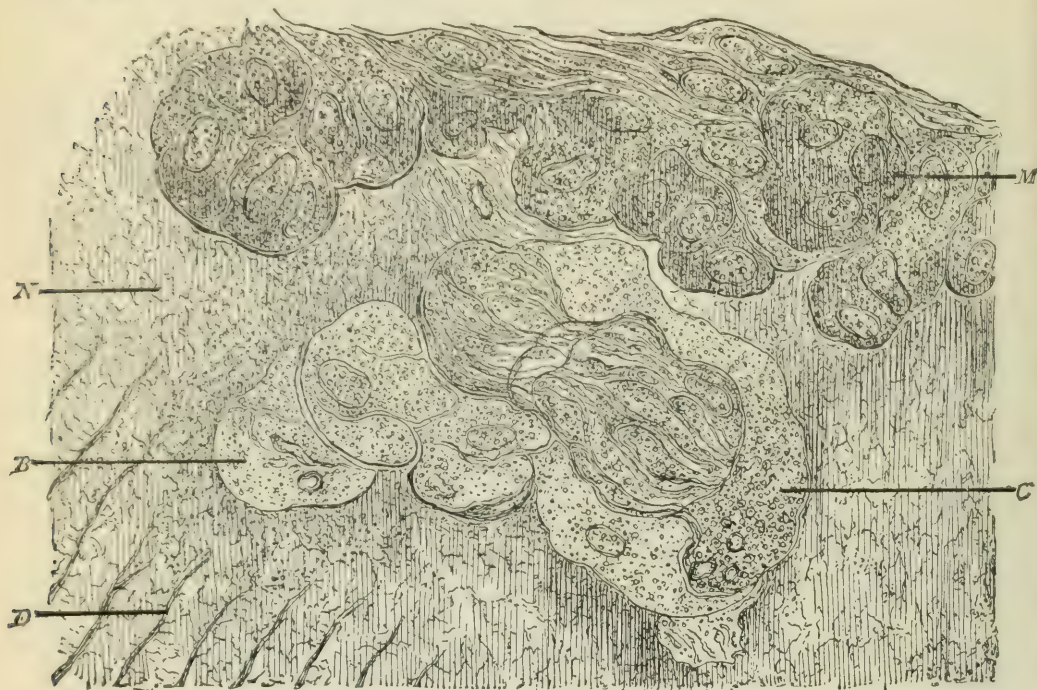


FIG. 2.—ABSORPTION OF NECK OF TOOTH.

N.—Dentine of neck of tooth not supplied with canaliculi. *D.*—Canaliculi of dentine stopping short of the surface of the neck. *B.*—Bay-like excavations in the middle of dentine, filled with a pale and finely granulated protoplasm, nuclei beginning to appear. *C.*—Excavation filled with coarsely granular protoplasm, tending toward an active new formation of medullary corpuscles. *M.*—Multinuclear protoplasmic bodies, the so-called "myeloid cells," in connection with fibrous connective tissue on the surface. Magnified 600 diam.

On the neck of the tooth the excavations penetrate not only the layer of the cementum proper, but also the layer of the subjacent dentine, which we know to be destitute of dentinal canaliculi. Here again we observe at first a dissolution of the basis-substance in globular fields, which appear filled at first with a finely granular protoplasm, lacking nuclei, afterward with usually nucleated medullary corpuscles, and at length with a slightly fibrillated tissue, the latter undoubtedly originating from a splitting of the medullary corpuscles into a number of delicate spindles. The surface of the

neck of the tooth likewise exhibits the characteristic bay-like excavations which are filled with nucleated medullary corpuscles, or with multinuclear protoplasmic bodies. From what I have seen, I cannot doubt that the nuclei under all circumstances are secondary formations, and cannot be regarded as the future bone corpuscles. A territory of bone tissue will form only after the protoplasm has assumed a uniform granulation, and the bone corpuscles will develop out of this protoplasm, by an increase of living matter at certain regular intervals. The result of the absorption and reappearance of the embryonal condition of the tissues, constituting the neck of the tooth, results in the formation of new bone tissue, either in the shape of globular fields (territories) of newly-formed bone tissue, or in the formation of a thin layer of regularly lamellated bone tissue, blending with that formed out of the cementum of the roots.

Bodecker, in his article on the distribution of the living matter in the dentinal tissues (*Dental Cosmos*, 1878-79), describes and illustrates the neck of a tooth, calling it an anomalous formation of cementum. From what I have seen I cannot doubt that his figure is taken from a deciduous tooth, exhibiting newly-formed bone tissue on the neck. Unquestionably such bony formations are not lasting, but are reformed into medullary tissue with the advancing absorption of the dental tissues, either leading to the formation of new bone or of fibrous connective tissue.

ABSORPTION OF DENTINE.

The most striking features in the dentine of deciduous teeth are the bay-like excavations on the surface after a complete disappearance of the covering cementum. The excavations contain medullary corpuscles, multinuclear bodies, or fibrous connective tissue, in connection with the surrounding pericementum, or periodontium. The appearance of such fields in the dentine gave rise to the theory that a foreign tissue grows into the dentine, destroying it in the manner in which dead bone is destroyed. If, however, we bear in mind that the tissue of dentine is composed of globular territories, the same as that of bone, we at once are in the position to understand the striking appearance of globular fields of absorption in the

dentine. The question can only be, is the dentine absorbed in a merely passive way, or does it share in the formation of medullary tissue, so long, at least, as it is the seat of life in itself? My re-



FIG. 3.—ABSORPTION OF DENTINE.

D.—Dentine provided with unchanged canaliculi. *B.*—Bay-like excavation in the dentine, containing finely granular protoplasm, which is about to form medullary corpuscles. *F.*—Medullary corpuscles elongated and split into delicate spindles, the future fibrous connective tissue. *M.*—Globular protoplasmic masses, the predecessors of globular territories of bone tissue. *G.*—Globular territories of bone tissue, with central bone corpuscles. *L.*—Lamellated bone tissue surrounding the outer surface of the absorbed tooth, or the inner surface of its socket. Magnified 600 diam.

searches strongly point in favor of an answer in the latter direction. In several instances I have been able to trace a slight widening of the dentinal canaliculi on the border of the fields of absorption, with an increase of living matter in the canaliculi. Such features are very common in the process of caries, where the dilatation of the canaliculi at the expense of the intervening basis-substance, and a new formation of medullary elements out of the tenants of the canaliculi, is a very common occurrence, provided that the caries attacks the living dentine. Circumscribed bay-like excavations, such as are common in the absorption of dentine, I have frequently met with in caries.

Sometimes such excavations, in caries, form independently of the surface destruction, and with the lower powers of the microscope even a well-versed eye, under these circumstances, would experience difficulty in discriminating between carious destruction and absorption of temporary dentine. Higher powers, to be sure, reveal the presence of micro-organisms in the former process, which are lacking in the latter. The first step seems to be identical in both instances; a dissolution of the lime-salts, or a displacement of the lime-salts, by the liquefaction of the glue giving basis-substance. After this, medullary elements arise out of the liquefied dentine which are destined to decay in caries, and, on the contrary, proliferate in the process of absorption, with the result of the new formation of medullary tissue. In caries the process of softening, or the removal of the calcified basis-substance, results in the death and putrefaction of the tissue; that is, its replacement by micro-organisms. In the process of absorption, on the contrary, it ends in an active proliferation of medullary tissue, with the non-interference of micro-organisms.

The result of the latter process is the same whether it occurs on the cementum, on the neck of the tooth, or in canalicularized dentine. The newly-formed medullary tissue consists either of single medullary corpuscles, usually with one oblong and faintly-marked nucleus, or in the shape of larger protoplasmic masses with a varying number of oblong nuclei, so called "myeloid cells." At the border of the bays I have sometimes been able to trace delicate thorny projections from the multinuclear masses into the unchanged basis-substance of the dentine. Sometimes I have seen broad offshoots of the multinuclear bodies penetrating the widened dentinal canaliculi, and in direct union with the dentinal fibers. The latter feature, especially, seems to point strongly toward an organic connection between the unchanged and the dissolved out dentine.

The multinuclear bodies are, as is well known, the future territories of bone tissue, and therefore predecessors of bone tissue. The formation of bony territories can easily be traced on the surface of absorbed dentine. Just as in normal development of bone tissue globular territories first appear, and afterward lamellated bone

tissue, so also in absorbed dentine, first multinuclear bodies, afterward globular territories of bone tissue, and at last lamellated bone tissue forms on the surface, the latter producing, in many instances, a continuous layer of bone all around the absorbed tooth. This feature is correctly observed and described by Tomes.

As to absorption of the enamel I can say but little. It is well known that bay-like excavations are seen in this tissue, in no way differing from those of cementum and dentine. From this fact it would follow that all the theories hitherto advanced with regard to the development of enamel must be erroneous, and there must be an arrangement in the enamel forming tissue leading to the production of territories in a manner similar to that of dentine and cementum. It seems that the process of destruction, starting on the surface of the enamel, is in all instances caries, and not absorption. The latter process attacks enamel only from within. After most of the dentine has been absorbed and transformed into myxomatous tissue, the enamel is attacked and thinned to a varying degree by the same process. Thus it becomes intelligible that the shell of enamel left, is coated by a layer of lamellated dentine, which is continuous all around the remnants of the provisional tooth.

Since we know that enamel is a live tissue in a living tooth, we may anticipate its reduction into medullary tissue in the process of absorption. Whether or not such a breaking down of enamel occurs and its consequent participation in the formation of bone tissue, I am unable to say.

DENTAL EDUCATION.

An article appeared in the INDEPENDENT PRACTITIONER (June number) under the caption "Dental Education," by B. Merrill Hopkinson, D. D. S., of Baltimore, Md., professedly in the interest of a higher and purer standard of dental education, but mainly made up of a vicious attack on the Baltimore College of Dental Surgery. Is this article really what it professes to be, a *bona fide* effort to aid in the elevation of the standard of dental education?

We believe not, and further believe that we can show that it is

not. The very tone and style of the article, from the point where the name of the Baltimore College of Dental Surgery is introduced into it, through the statement of cases, and down to the last line of the concluding paragraph, betray and express the feeling and spirit not of true friends of dental education, but of enemies of the Baltimore College of Dental Surgery.

This will become plain when we come to show whence this article emanated, and still more so when it is again read in the light of the facts which we will state, and we will state nothing as facts *of which we have not the best of proof ready for production* when the proper time comes.

Yet, while believing this, we will fearlessly meet the issue presented in it. While showing that the article containing this attack emanates from a rival institution, we will also show that the present Faculty of the Baltimore College of Dental Surgery has done nothing inconsistent with the custom and practice of the college, running back at least to 1869, fifteen years.

We know and can prove that the Faculty of the Baltimore College of Dental Surgery did, before the organization of the present Faculty, examine, and on being satisfied by such examination of their acquirements, proficiency and skill, grant in many cases diplomas to candidates who had not attended a course of lectures in that or any other dental college, and in one case, at least, in the same session in which Dr. Hopkinson graduated.

While we have the names of many of those in whose cases this was done in the last fifteen years, it would be manifestly indelicate and improper to bring them now before the public; they will be produced whenever it is proper to do so. Therefore, the ground taken in the article under consideration, that the alleged "irregularities" are of recent introduction and practiced only by the "present Faculty" of the Baltimore College of Dental Surgery, is entirely without foundation. But the present Faculty of the Baltimore College of Dental Surgery does not concede for a moment that such granting of diplomas, practiced by their predecessors and continued by them, is an irregularity, but contend that it is founded on sound principles and common sense. The position that they

occupy on this point has been repeatedly set forth in the "Visitors' Letter," published annually in the catalogue. We quote the following paragraph from the "Visitors' Letter," as published in the catalogue of 1882-3. "Attention is again called to some of the prominent and distinguishing features of the regime of this institution, viz: 1st. The practical recognition of the principle that merit and proficiency, as developed by a thorough examination, should constitute the title to a diploma. 2d. A board of visitors, selected from among the prominent members of the profession in different parts of the country, and acting with the Faculty in an auxiliary and advisory capacity. And, 3d. Open examinations, at which the board is represented by a committee, said examinations being based on a series of written or printed questions, prepared by each professor, and embracing the whole course of lectures and instructions in his department."

The correctness of the principle of the first feature is acknowledged by many of the best men of the profession. The objections to the application of this principle to practice are not founded on the unsoundness of it, but on its liability (and in the view of some), its certainty to be abused.

The State Dental Societies practice on this principle, in that they, under authority of a law enacted by the legislatures of their respective States, at their request and through their influence, do by the agency of a board of dental examiners, appointed in most cases by themselves, examine all applicants and grant to such as are found qualified a license to practice, or a degree, without reference to where, from whom, or in what length of time they acquired their qualifications.

It is in accordance with this principle that so many dental educational institutions, while requiring attendance on two full courses of lectures, accept in lieu of one course five years' dental practice, including regular pupilage; that is, the matriculant having acquired elsewhere sufficient knowledge to entitle him to enter as a second course student, is not required to spend a whole session in the college to learn what he already knows.

Why not apply this same principle to one desiring a diploma, who

knows enough of dentistry, theoretical and practical, to stand a first-class examination with a graduating class, and why compel him to attend a whole course of lectures to learn what he already knows? Besides, what properly conducted dental school has ever granted a diploma for attendance on two or more courses of lectures, without an examination of the applicant for it? Then, after all, is not a "satisfactory examination" really and in fact the only criterion by which the qualification of the candidate is measured?

These questions and positions, and probably others, will be proposed and discussed at the meeting of the Dental Faculties in New York City, in August next.

The Faculty of the College decided last year that they would, at the close of the following session, suspend the long-continued practice of the school in this respect, without, however, yielding their convictions of the soundness of their position. This was done from a due respect to the opinions and convictions of others, in a spirit of conciliation and with the expectation of being governed, after these points had been fully discussed, by the decision of the majority.

But now to the gist and gravamen of the article of B. Merrill Hopkinson, D. D. S., published in the June number of the *INDEPENDENT PRACTITIONER*. By the way, is this the same B. M. Hopkinson whose name lies before us, signed in a "round robin" with a number of other members of the graduating class of 1879-80, and attached to a paper condemning as a teacher the present dean of the Baltimore College of Dental Surgery, Professor R. B. Winder? Verily, round robins, like anonymous letters, are not brave things, and students are not competent judges of the qualifications of teachers.

On page 294, Dr. Hopkinson says: "I will now proceed to the statement of a few facts." So will we, and we will add some important ones omitted by him, and also prove some of *his* facts to be entirely untrue.

It is a matter of fact as shown in the annual catalogue of the Dental Department of the University of Maryland, of which F. J. S. Gorgas is now dean, that B. Merrill Hopkinson is an officer in

that department—an inferior officer, it is true, but nevertheless an officer, being Assistant Demonstrator of Operative Dentistry. We think that if the Assistant Demonstrator of Operative Dentistry in the Dental Department of the University of Maryland had been as fully informed (as is evident from his article he was of other things) of the practices of the dental members of the Faculty of his department for years, while they were professors in the Baltimore College of Dental Surgery, and extending up to and through the session of '82, in voting to confer the degree and grant the diploma of D. D. S. without attendance, or on mere nominal attendance on lectures, this article would hardly have been fathered and published by him.

It is so clear and plain an inference as almost to amount to a fact, that as Assistant Demonstrator he could not have come officially in possession of the "names, dates and localities" and alleged facts of the four cases described by him in his communication, but must have obtained his information from the dean, to whose knowledge alone these alleged facts should originally come, and from whom alone a knowledge of them could be derived. Here we have an attack on the Baltimore College of Dental Surgery by an officer, if not by the officers of the Dental Department of the University of Maryland, a rival dental school, in which the dean of the latter is held up to public view as being rigidly virtuous and the Faculty of the former as being the loosest kind of characters. We should not need to go farther than this for the real motive and true animus of the article to which we are replying.

We have given above some of the facts omitted in that article, and will now give some more, and further on still more, which will form very interesting reading to all directly or remotely concerned. Before taking up separately the four cases mentioned, we will say that all the gentlemen named, except the two from Massachusetts, brought, in compliance with the requirements of the college, satisfactory evidence that they had been practicing dentistry more than ten years, and that they had in that time made a fair reputation for themselves in the profession.

All six of these gentlemen were examined by each professor in

his department (as all other candidates are), and each professor voted on the result of that examination. The committee of the Board of Visitors were present, as they always are at all of these examinations, and at the Faculty meeting at which the vote on all candidates for graduation was taken. This is the regular practice every year, and, taken in connection with the quoted paragraph of the Visitors' Letter and the known practice of the college in this respect, should be evidence that the Faculty of the Baltimore College of Dental Surgery have nothing to conceal, but hold all their official acts and deeds open to the broad light of professional inspection. We will now take the last case (No. 4) first. The *alleged* facts in that case are that "Mr. C. S. W. Baldwin applied to the dean of the Dental Department of the University of Maryland on the last day of February, 1884, for admission to the graduating class, was quickly refused, and, *mirabile dictu*, was made a Doctor on March 6, 1884, by the Faculty of the Baltimore College of Dental Surgery."

The *real* facts are as follows:

The gentleman named wrote to the dean of the Dental Department of the University of Maryland as to terms of graduation in his case, and received the following reply, of which we have the original in the handwriting of, and signed by, F. J. S. Gorgas.

BALTIMORE, February 7, 1884.

DR. C. S. W. BALDWIN:

Dear Sir—Your letter is at hand, and its contents carefully noted. As three other members of the New Jersey State Dental Society, of eighteen and twenty years practice, desire a diploma from the University of Maryland Dental Department, the following arrangements have been made in their cases and accepted, and the same will be made to you: To come, on or about the twentieth of the present month and remain several days, matriculating, and during their stay dissecting the upper extremity, then return home, and next session pass the month of November at the University, a few days of January, and the greater part of the month of February, and be present during examination week (1st of March) and on commencement day, about the 14th or 15th of March. Such an

arrangement will enable you to dissect this session, and the amount of fees to be paid this session will be five dollars for matriculation, and ten dollars for dissecting ticket. Next session the fees will be one hundred and five dollars, and diploma fee thirty dollars.

Such attendance will comply with the requirements of the University. Less time spent here would not do so, and besides, the State Associations are taking decided action against the conferring of diplomas by colleges without attendance, and some will, no doubt, during the coming year refuse to recognize diplomas which are bought.

I trust the arrangement I have described may suit you as it has the Secretary and two prominent members of your State Society, who are going to follow it out. I shall be much pleased to receive the specimens you refer to in your letter, for our museum.

Yours truly,

F. J. S. GORGAS, Dean.

In answer to further inquiries, he received the following, also in the handwriting of F. J. S. Gorgas, and signed by him:

BALTIMORE, February 15, 1884.

DR. C. S. W. BALDWIN:

Dear Sir—Our regular sessions end March 15th of each year, and the summer sessions are devoted altogether to practical work; hence, attendance on the latter is not regarded as equivalent to that at a regular session.

I should like to oblige you in every way possible, but the rules of the University are such that I cannot offer more than in my first letter. The Board of Regents are very particular in regard to the observance of all requirements. Besides, the State Board of Examiners are noting irregularities on the part of dental institutions, and will, through great pressure brought to bear during the coming summer, declare the diplomas of all institutions who graduate on a slight attendance, of no account. Pennsylvania may take this action soon in regard to a dental college in Baltimore, whose diploma is becoming worthless on account of irregularity and the mere selling of degrees.

Yours truly,

F. J. S. GORGAS.

The dates and contents of these documents prove the untruthfulness of the statement of the case by the author or authors of the article, and also prove the insincerity of the article, ostensibly from the pen of a disinterested party, but really of a demonstrator of operative dentistry in a dental school which is a rival of the Baltimore College of Dental Surgery, and whose dean agrees, in writing, to commit the irregularity of accepting two months or less presence at his school, for attendance on a full course of lectures which commences on the 1st of October, and ends in March, five full months.

The further real facts in this case are that Dr. C. S. W. Baldwin (for he has this title in the above letters) matriculated in the Baltimore College of Dental Surgery on the 22d or 23d day of February, 1884, having brought the required evidence of having been in practice ten years, and the endorsement of three dentists of high standing—one in New York City, one in Newark, N. J., and one in Montclair, N. J., as to the good standing and reputation he had acquired—underwent his examinations, as all other candidates for graduation did during five days, from February 26th to March 1st, inclusive, was found qualified, and received his diploma on March 6th.

We will not leave this case without giving the following statement which we have from Dr. Baldwin, and to which he is ready to testify on oath. He has never even seen the dean of the Dental Department University of Maryland, therefore he could not have applied to Dr. Gorgas, much less been refused by him, as stated in the article. He called to see Dr. Gorgas on the evening of February 19, 1884, but finding him not at home, was sent to Dr. Jas. H. Harris, the only other dental professor in their dental department. So disgusted was Dr. Baldwin with his disparagement of others that he decided to go to the old Baltimore College, and applied the next morning to its dean to matriculate, but could not do so until he had furnished the required endorsement.

We will next take the case No. 3. We have the sworn statement of Dr. T. H. Schaeffer, that he was looking for the Baltimore College of Dental Surgery, and by mistake called on Dr. Gorgas. That he was not refused, but after leaving him learned that he was no longer connected with the Baltimore College Dental Surgery, and, there-

fore, matriculated at that college, underwent a regular examination and received his diploma.

Case No. 2, that of Drs. J. F. Dowsley and F. A. Twitchell, is cited as one of irregularity, but is not so by any means. They were qualified to enter as second course students, as is shown by their matriculation with Dr. Gorgas, by virtue of having attended one course of lectures in a dental college. After being matriculated at the Dental Department of the University of Maryland, they passed a few days there, and all the rest of the session in attendance on lectures at the Baltimore College of Dental Surgery. They did not pay their "fees," as stated in the article, but only the matriculation fee of five dollars. By the way, is it not singular that of all the cases of graduates on examination by the Baltimore College of Dental Surgery, those only are mentioned in which the hundred and thirty dollars each slipped through the hands of the dean after he thought he had them safe? This, after all, would seem to be the true grievance, and to answer the question in the article, "why go further and speak specially of the other cases?"

The real facts of the remaining case (No. 1), as contained in a sworn statement of Drs. F. C. Barlow and C. A. Meeker, are as follows: On or about December 27th, 1883, Dr. Chas. A. Meeker was spoken to and told that he ought to go to Baltimore and graduate at the Dental Department of the University of Maryland at that session, and that the party so advising him would write a letter to the dean, and have him matriculated and graduated at that session, if he, Dr. Meeker, would send five dollars in the letter so written (of course he was to pay the other fees at the proper times).

The letter was written, the five dollars and a few lines from Dr. Meeker enclosed and mailed. In reply the dean wrote a letter (which we have) to Dr. Meeker, dated December 29th, 1883, acknowledging the receipt of the five dollars and enclosing a matriculation ticket. A few days after, Dr. F. C. Barlow was spoken to to a like effect, and he too was matriculated.

Both these gentlemen went to Baltimore about the 4th day of January, 1884. They called on Dr. Gorgas the next day, Saturday, and were given to understand by him that they could graduate at

that session (which was what they had been told before leaving home); that Dr. Tiffany was very strict, but that he (the dean) had two votes and Dr. Harris one, and if they could get another one, these four votes would pass them even if Dr. Tiffany voted against them. They called on him again, at his request, the next day, Sunday, when he told them he had seen Dr. Tiffany about their graduating at that session, but could do nothing with him as he was opposed to it. They were then introduced to Dr. J. H. Harris, who, under the circumstances, broached the idea of their receiving an "honorary degree" at the end of that session.

They went home, and about January 25th, 1884, were informed that the medical members of the faculty would not consent to the granting of an honorary degree in their cases, so that they must come to the University at the next session, that their attendance on the lectures would be merely nominal, but that they would be examined at the end of the session.

On the 25th of February they called on the Demonstrator of Anatomy, procured dissecting tickets, were furnished a subject and went to dissecting a head. After they had finished dissecting, and just before leaving, they were told by the dean that they need only come two or three times at the next session, as it might suit their convenience, but it was necessary that they should be *seen* at the University, that their examination would be light, and they might rest assured of their diplomas, because he would guarantee them the votes of himself and Dr. Harris.

On reflecting and consulting on this, they concluded that a diploma obtained on these conditions would not possess the value that it should have, so they matriculated at the Baltimore College of Dental Surgery, underwent their examinations by all the professors, were pronounced qualified, and received their diplomas.

The slur on these gentlemen, on page 296 of the article, was uncalled for and without justification. They were among the original members who formed the State society, and have long held important positions in New Jersey, both having been President of the society—one for seven years its Secretary, and the other about the same length of time a member of the Board of Examiners.

One more fact, and we will close this reply. We have in our possession a document, of which the following is a true copy, except that for reasons before stated, we withhold the name on the same conditions:

"On or about the 14th of November, 1883, I visited the Dental Department of the University of Maryland. Met Dr. Jas. Harris. He stated to me that he knew my ability, and if I would matriculate at the college and stay awhile, I could go home and attend to my practice until near the commencement, and then return to the college and graduate, and that he would guarantee me a diploma. I told him that I was the beneficiary student to the old Baltimore College of Dental Surgery, and Dr. Harris said he was sure Dr. Gorgas would take my ticket and admit me as beneficiary student. Dr. Harris also stated that the old Baltimore College of Dental Surgery was defunct, and the present term would be the last of it."

"May 28th, 1884."

"Testified to before me this May 28th, 1884,

H. B. GIDELINS, J. P."

We will conclude this reply by saying that the members of the "present faculty" of the Baltimore College of Dental Surgery have always been and are now ready to co-operate in any judicious, well-considered, and practical measure to raise the standard of graduation in the dental schools.

JAMES B. HODGKIN, D. D. S.

RICHARD B. WINDER, M. D., D. D. S.

M. WHILLDIN FOSTER, M. D., D. D. S.

J. H. COYLE, D. D. S.

THOMAS S. LATIMER, M. D.

JAMES E. LINDSAY, M. D.

Governing Faculty of the Baltimore College of Dental Surgery.

"PIVOT CROWN."

BY F. E. HOWARD, M. D. S., BUFFALO, N. Y.

I have devised a new method of setting the "Bonwill Pivot Crown," and others of its class, which to my mind is far superior

to the system advised by Dr. Bonwill, viz, the use of amalgam in making the setting, which I have long since abandoned.

After the usual preparation of the root, select platinum or good wire, barbed, of proper size, or a Bonwill pin. Make a mixture of zinc phosphate, fill the root, crowd the pin in position, and impact the cement to pin and root. The pin should be long enough to extend into the opening of the pivot crown on the palatine surface.

After the cement sets, trim down all excess of filling to a flat surface. Take of good gutta percha a piece that will cover the end of the root, and the thickness of card-board; punch a pin-hole in it and adjust it to the root. Make the second mixture of cement and fill the crown. Slightly warm the gutta percha, put it in position, and crowd the crown to its place.

By this method a joint is secured that is impervious to moisture, preventing disintegration of the cement, which is very strong and all that can be desired if kept from the secretions of the mouth.

Now, if you desire it to be still more permanent in its character, cut out the excess of cement at the palatine cavity, and fill with gold or amalgam, bringing the filling in contact with and partly anchoring it to the pin that extends into the root. This method gives us a pivot crown beautiful in appearance, and practically as strong as any that we have.

Should any accident necessitate repair, a new crown is easily adjusted.

Reports of Society Meetings.

SOUTHERN DENTAL ASSOCIATION.

SIXTEENTH ANNUAL MEETING, HELD AT LEXINGTON, KY., MAY 6, 7, 8 AND 9, 1884.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

(Continued from page 327.)

Dr. Patrick said that in the mixed European races more and greater anomalies are found in individual parts than in the diverse races of Africa or Asia. The peculiarity of the human being is that

he crosses with his kind. Man is of one order, and the only species of that order. He is *genus homo*, and homogeneous as well. In the herbivorous classes of animals we find special families, for the reason that they will not cross. If they do they produce *hybrids*. So there are natural reasons for the irregularities in human teeth, because the races cross and re-cross.

The President called the attention of the convention to the Coffin method of regulating teeth, not used so much on this side the Atlantic as in Europe, where he had seen numerous models. It is simply the appliance of a split plate to the roof of the mouth, to spread it, no matter how contracted. You sometimes find an arch no wider than your finger. Put in a split plate, and it will change the whole shape of the mouth, and the shape of the face. Other appliances may be used with the split plate. Dr. Coffin is using this plate very largely. He had models where the arch had been spread over half an inch, giving an entirely different expression to the face. Nothing can be found to act with so little pain. You can put this plate into a child's mouth, when you are regulating it (and you know how hard it is to keep anything in a child's mouth), and it is never troubled. It is kept up by fitting every tooth; so the arch has nothing to interfere with it. The teeth are enclosed with a rubber plate. You can make a combination of this plate with this wire (Patrick's) in regulating teeth. Dr. Coffin has been very successful with it.

He (Dr. McKellops) tried it on his own son, going back to London to have the boy operated upon. On shipboard the lad was very sick, and would take the plate out and put it back. By the time they landed the displaced lateral incisor was in its proper place. In nine days the tooth was moved, and is there to this day. As soon as it got over the under tooth it remained there—it had to stay put.

Dr. J. Hooper, Louisville, said he has had some twenty-five cases, and has had remarkable success. In the case of one lady patient he expanded the arch nearly an inch. She is a musician in a church, and when she went to sing she took the plate out, and put it back again when she was done. Another was a case of a crossed canine

tooth, which was pushed in place in seven weeks. There was no pain, except just a little soreness for the first four or five days.

The President said Dr. Coffin was of the same opinion as Dr. Patrick, that appliances can be put on at any age. He does not hesitate to put them on a person fifty years old.

Dr. Patrick described a case of irregularity by supernumerary teeth, from the model. There was a supernumerary between the left superior front incisor and the lateral. The canine had developed, and caught the gum away up above, and was crowded out and protruded over the jaw. He explained his operations, extending over a period of two years, and how he finally got the central incisor straight, but lost the canine, which he believed he could have got in place had he not been in such a hurry to extract. Some cases cannot be very well regulated, as when the irregularity arises in the form of the maxillary bones. He had models in which there are only the two front incisors; another with only the lateral incisors; others have no incisors at all, and in two of them there is hare lip. The maxillary bone may show retarded development, or it may be so developed as that the front incisors will be too short to occlude with the others. He did not see any means of regulating such cases without taking out the molars, when the bicuspid would antagonize. Arrested development may be on one side or the other, superior or inferior, on the right or left, or in the center. When the lower teeth project over the upper, if these teeth in front show a puffy border of skin, the fangs are not right, and if you attempt to move them you will move them out entirely.

Prof. R. B. Winder questioned the influence of the crossing of races as laid down by Dr. Patrick. He had studied the large collection of half-breed skulls at Washington, and in every case they are the skulls of the white man, and not of the Indian. The correct theory regarding the crossing of races is supported by skin developments. When any of the inferior animals are crossed, the progeny retains chiefly the characteristics of the male. Take for an instance that most common of hybrids, the mule. These skulls referred to, contain the teeth of the white man, and not those of the Indian.

Dr. Patrick declared that the white man who associates with the

Indian is close to the Indian (laughter). He had never been able to find marks of distinction between a white man's tooth, taking him as a white man, and that of an Indian or negro. He could take an Australian's tooth and tell it, if it were mixed in a bushel; but he couldn't take a European's tooth and tell to what race it belonged. He had tried to, but there is such a variety in teeth of Europeans that he found it impossible.

Prof. Winder remarked that he had alluded to the arches and their arrangement.

Dr. Patrick insisted that there is such a variety in the European that one cannot tell. You can hardly tell in the skulls. Samuel George Morton, of Philadelphia, had tried, but could not establish a rule. Paul Broeck, of France, could not do it. He (Dr. Patrick) had examined these collections at Washington. What astonished him was that a member of the American Dental Association had said there was not among dentists one qualified to examine crania. If he had been in the least acquainted with anthropology, he never would have said it. It is a very difficult matter to distinguish skulls of different races. Put them together, and you will find a European skull that will match any one of them. The study of one, is a case which belongs to the surrounding state of individuals when they have been isolated. But when you take two, you cannot tell. You do not know the teeth of man until you have examined the teeth of other animals. There never was any anatomy until comparative anatomy became a study, through the influence of Cuvier and in his time.

At the close of the session, Dr. A. O. Rawls was presented with a pair of beaten silver drinking-cups, made by the President, a knife and a masher. The presentation speech was neatly made by Dr. Patrick, and Dr. Rawls appropriately responded.

SECOND DAY—MORNING SESSION.

After routine business the President again called up the subject of
OPERATIVE DENTISTRY.

Prof. J. Taft, of Cincinnati, spoke with special reference to the time when interference should be made in treating irregularities.

In many instances it is made too early. Interference should be mild before the teeth have completely developed. He thought it likely that the rule given by Dr. Patrick was as reliable as anything—to wait till the indentations or cusps on the points of the incisors are worn away. There will be calcification and formation of the roots by that time. It is well not to interfere with the permanent teeth before the age of fourteen or fifteen. They may be moved after that till fifty. Differences will be found in different cases. Sometimes a tooth can be moved easily, and with very little irritation; again the operation must be conducted with very great caution, lest permanent injury be done to the parts. When a tooth is moved to one side, a filling up on the other side must take place, if you want a fixed tooth. It is a question whether this new growth in the filled place is more susceptible to disease than is the other side. He had sometimes thought a tooth, after being disturbed, more liable to disease. Where an expansion of the arch is required, a split plate is best. The pressure is against the arch, and the teeth more nearly retain their original position. The appliance used by Dr. Patrick is very good, but the Coffin plate has more sweep of application. These two seem to embrace all that is necessary. It would be well for the profession to thoroughly understand these two appliances, then there would be very little call for anything else. That it is very easy, usually, to regulate teeth, is another reason why it should not be attempted at a very early age. An intelligent parent can correct a child's tooth by very little manipulation. He had known young people to correct the position of teeth for themselves. It was better for the dentist to direct the correction, than to make a rapid change. The time ordinarily given to the correction of irregularities will yield a far larger income to the dentist in other work, and if the patients can do the work it is better that they should. A dentist will often spend five or six months regulating a tooth, and only get forty or fifty dollars. It is one of the least remunerative parts of the practice. If the cases can be managed without this waste of time it is far better they should be.

Dr. S. S. Waters, of Baltimore, produced a model in which the front teeth all projected forward and were elongated to a most unnatural degree, and asked what could be done in the case.

Prof. Taft thought it could be very much improved by pressing the teeth up a little, and throwing the roots out a little.

The President asked if the molars could not be elongated.

Prof. Taft said it might be done, but thought it as easy to do the other. He would trim the corners of the teeth.

Dr. Patrick said the alveolar process had advanced, the septums and cells all being moved forward. To be successful the operator would have to move the bicuspid back, one by one, and hold them there as they were moved. In the meantime further progress forward might be stayed, as it would increase with age. The deformity had been partly produced by a fault in the maxillary bone—the ankylosis of a suture or the non-ankylosis of another suture, as seen in the different shapes of the head. Teeth which depend on the ankylosis of bones follow the bones. The molars were not moved. Anchoring to the molars, the others could be drawn back one at a time, and when got back bound there. That would prevent them shifting forward. They would be longer. The back ones would have to be drawn up, or the others would be too long. When a tooth begins to shift, stop it, and retain it in place till a callus is formed. One might begin to move these teeth and the condition of the patient be such that no callus would form. The teeth could be brought in and fixed. If allowed to remain they would get worse; not only the incisors, but the bicuspid.

Dr. Waters, in answer to a question, stated that he had not decided what to do in the case. He merely had it under consideration. The guardian of the patient had almost decided what should be done.

The President and others favored pulling all the front teeth out.

(TO BE CONTINUED.)

ILLINOIS STATE DENTAL SOCIETY.

TWENTIETH ANNUAL MEETING.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

The twentieth annual meeting of the Illinois State Dental Society assembled in the Senate Chamber, at Springfield, Ill., Tuesday, May 13, 1884.

The meeting was called to order by the President, Dr. Edmund Noyes, of Chicago. Afterwards the roll was called by the Secretary, Dr. J. W. Wassall, of Chicago, showing an attendance of seventy-eight members, which was subsequently increased to ninety-eight.

Prayer was offered by the Rev. Dr. Post, of the Congregational Church.

Miscellaneous business came up at this juncture, and upon its completion the reports of committees and officers were heard. The election of new members was followed by the President's address—Vice-President H. H. Townsend, of Pontiac, in the chair. The address was a comprehensive review of the past year, with a prediction of a brighter future.

After the appointment of committees the society adjourned until 2 o'clock P. M.

AFTERNOON SESSION.

After the reading of the minutes of the morning session, and the transaction of other routine business, Dr. A. W. Harlan, of Chicago, from the committee to ascertain and report what arrangement, if any, had been made for dental representation at the proposed International Medical Congress at Copenhagen, on August 12-16th next, reported that after considerable inquiry, personal and by correspondence, he had been unable to learn that the plan of the proposed gathering contemplated a dental section; on the contrary, his assurances were in the negative. The report was agreed to.

A number of corresponding members from other States were present at this session, and several applicants for active membership being favorably reported upon, the candidates were elected by ballot.

The regular order was then taken up, and Dr. S. F. Duncan, of Wilmington, read a paper upon "Exposed Dental Pulp and Their Treatment."

The usual methods of capping and devitalization were discussed in this paper. Aconite was recommended for both local and internal use, and the stick of wood in preference to the barbed broach, for the removal of the pulp from root canals.

The oral discussion was opened by Dr. J. N. Crouse, of Chicago, who urged that to arrest the decay and prevent the destruction of the teeth, is the crowning work of operative dentistry.

He stated that a correct diagnosis of the actual condition of the pulp was of the first importance. If the pulp is exposed and living, the dentine at the point where the exposure will most likely be found, is usually sensitive. If the tooth is reasonably sensitive at the line of union of dentine and enamel, a condition of the pulp favorable to capping is indicated. He always leaves softened dentine over the point of exposure, and over the entire floor of the cavity, and caps over that. After excavating with care, he syringes the cavity forcibly, then dries it out and applies carbolic acid. This is allowed to remain several minutes. Is not particular to wipe out all the carbolic acid, sometimes leaving considerable. Children's teeth decay more rapidly than those of adults, and the pulps are relatively larger; consequently more caution is required in excavating. Has many times unexpectedly uncovered pulps in the sixth year molars. Aching teeth are treated for the relief of pain, and afterwards, at the same sitting, successfully capped and filled. This was not his former practice, but it is now, and he finds it justified by experience. He commenced the practice of capping exposed pulps with some doubt, he might say skepticism. The older practice was to remove the pulp, or at least a portion of it. But his later experience had fully demonstrated to his mind the utility of capping, and such was now his uniform practice, even in the case of children. Of course the condition of the pulp, whether abnormal or normal, was to be considered. If that was all right he proceeded to cap, and at once proceeded with the operation of filling. If the cap was carefully put on, there was little danger of subsequent aching of the tooth.

"I cap with whatever material seems best adapted to the case, often using oxy-chloride of zinc, and sometimes oxy-phosphate. I prefer the former, for the reason that it flows more easily over the opening. It does not cause pain, or but very little, when the pulp is previously treated with carbolic acid. Others differ with me regarding the frequency of capping. If those who object say

it is not a good practice, I say to them, you have not applied the caps with sufficient skill (laughter), or you would succeed as I have. For fourteen years I have had good success in capping, and I can show cases I have examined three years and more after the operation, and found the pulps still alive."

Dr. Spalding—(of St. Louis). What proportion, relatively, does your success bear to your failures?

Dr. Crouse—(resuming). I estimate my failures, sir, at not more than one-tenth—perhaps less. If I have carefully done the work, success is pretty sure. I have had cases where I really supposed the pulps would die, but I capped nevertheless, and afterwards found them doing well. A boy called in my office only two days ago, for whom I had capped pulps five years ago. I examined them and found them alive and in good condition.

If filled temporarily, the cap must not be disturbed when the cavity is permanently filled. The state of the general health is not much considered. Have successfully capped pulps that have been exposed for years. Have capped many that I supposed would die, but they recovered.

Dr. Patrick—(of Belleville). I would inquire if, after thus treating it, you have removed the cap from the pulp, and with what result?

Dr. Crouse—I have often done this, and found the pulp alive and doing well. All aches and pains were gone. I have had patients come into my office in great pain, and after capping I rather expected them to come in the next day, perhaps howling with pain; but if they came, they did not complain at all. Why, sir! as skeptical a man as Dr. Dean, years after such capping, made an examination and found the pulp not destroyed.

I avoid wounding, but do not hesitate to cap a wounded pulp. Have tested many such cases and found the pulp alive years after capping. It is a very delicate operation, and unless skillfully done will not succeed.

Dr. Newkirk—How long have you used carbolic acid, and have you used creosote? If so, with what result—comparatively?

Dr. Crouse—I have not found creosote as reliable as carbolic

acid. It does not generally produce so firm a coagulum. When it does, it may be that it was due to the impurity of the creosote, for much that was formerly used as creosote was, in fact, carbolic acid, or was largely mixed with it.

Dr. Patrick.—Is there any coagulum left, and if so, what becomes of it?

Dr. Crouse.—The coagulum is not disturbed.

Dr. Black subsequently explained that the coagulum is absorbed in the same manner that extravasated blood is.

Dr. Patrick.—Was sorry to say that in capping his success was not especially good, particularly when the pulps had been long exposed. Many years ago he was taught to trust to nature, and has followed the practice of removing the soft tissue and filling afterwards. He had been somewhat of an infidel in this matter, and was still skeptical. He had capped pulps with success, at times, but he took no risks.

Dr. Sudduth.—Said there was little trouble in capping pulps in ordinary cases, where the patient's condition justified it.

Dr. Townsend.—Said that his experience in capping was not wholly like that of Dr. Crouse.

The debate here became very animated and general, amid which Dr. Crouse was asked:

“What do you mean by saying that you expected patients to come in raving with pain as the result of the operation? Is it that you expected pain would follow the capping, and were surprised that it did not?”

Dr. Crouse.—Yes, I expected that the patient might complain of pain. But I meant to be understood figuratively; not that I was surprised that such results did not always follow. Oh, no!

Dr. Patrick.—Ah! I thought the gentleman spoke of his general practice in preventing pain, not of an isolated case. (Laughter.)

Dr. Crouse.—Dr. Patrick has misconstrued my words. If he will come to Chicago I will show him the result of capping in frequent practice, and he will return to Belleville not an infidel, I am sure.

Dr. Nelson.—Inquired of Dr. Crouse whether his subsequent examination of pulps established the utility of capping.

The President.—Dr. Crouse has already said so.

Dr. W. H. Eames.—I came here from St. Louis in pursuit of information. You don't expect to learn much from me; but I would like to ask a few questions. I am much interested in this subject of capping pulps. Good operators have stood before us and explained their methods, but I would like to know somewhat further. First, I would like to ask Dr. Crouse how he decides upon the condition of the pulp—that it is healthy enough to justify capping? What evidence has he of this health, or what evidence does it require to convince him that it is proper to cap? Dr. Crouse says, if I understand him rightly, that the sensitiveness of the part is his criterion, and I ask him to tell at just what point to draw the line between the health of the pulp and its abnormal condition. I think that health has much to do with the justification, and with the result of the operation. Another matter would influence me in deciding upon the operation—that is age. The tooth-pulp of an adult might be capped, when that of a child ought not to be.

Dr. Spalding.—Being called upon, responded that more than twenty-five years ago, before the capping of pulps was practiced, he adopted the practice of devitalization and removal, and had not been sufficiently successful in capping pulps to induce him to change his general practice. Now, a few words relative to devitalization. About thirty-four years ago I ordered a druggist to fill the usual prescription employed for this purpose, viz., equal parts by weight of arsenious acid and of acetate morphia. Having in mind my knowledge of homeopathic pharmacy, I ordered the mass triturated half a day, for the purpose of being assured that the *Ars. Ac.* was minutely divided. I have used from the bottle containing this prescription ever since, and have distributed a part of its contents to others. Have met with none of the difficulties sometimes encountered in the use of arsenic, and I attribute my success to the finely divided condition of the active agent. Complaint is often made of difficulty and failure in destroying the vitality of the pulp near the extremity of the root canals. I do not hesitate to introduce this preparation into a root canal, and to convey it nearly or quite to the foramen at the apex. A mere dust on a dry broach

is sufficient for this purpose. I have never observed any disagreeable consequences resulting from such practice.

Dr. G. V. Black—(of Jacksonville), said that he was already on record on this question, for he had expressed himself at former meetings. His earlier experiments in this pulp matter were not very successful. He would suggest that we differentiate, for cases vary in pathological condition. Thus, Dr. Crouse says if the pulp is normally sensitive, he decides to cap. I will only add that if I see an abnormal condition, I decide not to risk capping. I would hesitate more in a child's case than in that of an adult. The pulp is less and less important with age, and more important in childhood.

Dr. Patrick.—I am still inquisitive. Will Dr. Spalding be kind enough to tell me which element in the preparation acts first; the arsenious acid or the morphia? I came here, two or three hundred miles, for information.

Dr. Spalding.—Would cheerfully explain. He used morphia for the simple reason that others had done so before him. Thought it probable that some other substance, say some neutral substance, would answer just as good a purpose as the morphia. It was the arsenious acid that did the work, and so far as he knew, the morphia only served to increase the bulk, and thus lessen the amount of Ars. Ac. applied.

(TO BE CONTINUED.)

AMERICAN MEDICAL ASSOCIATION.

SECTION OF ORAL AND DENTAL SURGERY.

SESSION OF MAY 7, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY JNO. S. MARSHALL, M. D.

The section was called to order at 2.30 P. M., by the chairman.

The minutes of the last meeting were read and approved.

Dr. Williams moved the appointment of a committee of three to draft suitable resolutions upon the death of Prof. Samuel D. Gross, of Philadelphia. Carried.

Dr. G. V. Black made a motion to add the chairman of the section to the committee. Carried.

The chairman appointed as such committee, Drs. Williams, Allport, Friedrichs and Brophy.

A volunteer paper was then read on

DENTAL CARIES AND ITS RELATIONS TO THE GERM THEORY OF DISEASE; BY G. V. BLACK, M. D., D. D. S., JACKSONVILLE, ILL.

Dr. Black opened his paper with a description of the clinical aspects of dental caries, as follows:

"Caries of the teeth has been defined as a molecular disintegration of the tooth's substance, or a breaking down of the chemical constituents of the tooth, molecule by molecule. This destruction always has its beginnings on the surface of the tooth, or in some pit, crevice, or other imperfection in the enamel, and it spreads from this point as a focus in every direction, the dentine being destroyed more rapidly than the enamel. Hence, it usually happens that the cavity is larger within, than on the surface of the tooth.

"Caries does not seem to be a simple solution of the tooth substance; sometimes we find nearly all of the material removed from the cavity; in other cases we find the dentine reduced to a pulpy or semi-gelatinous mass, in which the structure of the dentine is more or less perfectly preserved.

"Some decays are white, some are black, some have a yellow tinge. All the shades from white to black may be found."

He then stated it was his intention to confine himself as closely as possible to the discussion of the probable cause of caries. "I say *probable* cause, for I do not assume that the cause or causes are certainly known. Indeed, we may say that at the present time there is the greatest disagreement among even the best informed men on this important subject, and that it is still very uncertain that any of the theories in regard to the matter are correct." He recognized the fact, however, "that more than one of these explained the phenomena with sufficient accuracy to be of great value, both in the prevention and treatment of the affection." In reviewing the various theories, he said the acid theory had formed a good working basis upon which to found the principles of practice, but that from a scientific standpoint there are many objec-

tions to it. "According to the chemical theory, the substance of the tooth is decomposed by an acid; this acid acts more readily on dentine than upon the enamel, therefore the tendency to the enlargement of the cavity toward the internal portions of the tooth."

Attempts have been made by Dr. Watt and others in America, to define the acids acting upon the teeth, and to classify the varieties of decay caused by these acids—nitric, causing white decay; sulphuric, black decay; and chlorohydric, the intermediate colors. In Europe the views of Dr. Watt are not endorsed, for the acids causing the affection are believed to be the lactic, acetic, and similar acids, belonging to the organic group.

Magitot, of Paris, also claimed, after extended experimentation in this direction, that decay is caused by acids—lactic, acetic, butyric, etc.—and that these acids are derived from the saliva, as a product of fermentation. Magitot admits also the agency of micro-organisms in the production of these acids.

Leber and Rottenstein attempted to prove the causes of dental caries to be the action of acids, and the rapid development of a parasitic plant—the *leptothrix buccalis*. They do not claim that this fungus is capable of penetrating normal tooth structure, but when the surfaces have been attacked by acids and become softened, the micro-organism may enter such breaks in the continuity and continue the work of destruction, but how this is accomplished is left without explanation.

Dr. Black then said: "We can conceive, however, that they may do something to assist the softening process by the out-pouring of a digestive fluid. If, however, this fungus gave a fluid that could digest a tooth, we would think that sound teeth should be very scarce, for it grows abundantly in every mouth."

He next deals with the later experiments of Dr. Miller, of Berlin, and said: "They bear the stamp of being more carefully performed than any that have previously come to our knowledge." "Dr. Miller begins the series of articles in the INDEPENDENT PRACTITIONER with this sentence: 'During the last two years I have stated at different times and places that the first stages of

dental caries consist in a decalcification of the tissues of the teeth by acids, which are for the greater part generated in the mouth by fermentation. The object of the investigations described in this and following papers is to determine this ferment, and the conditions essential to its action.' " Dr. Miller's experiments proved: *First*, that the ptyaline of the saliva could not so change starch as to produce an acid. The starch was changed to sugar, but the reaction went no further, the solution remaining sweet indefinitely, if precautions were taken to guard against the admission of germs. This proved the "acidifying power" to come from some outside source.

Second, That the cause of the change in the starch from sugar to an acid was an organized ferment, capable of propagating itself. This was proved by the infection of sterilized culture fluids with carious dentine.

Third, That the organized ferment was a micro-organism (*bacterium lactis*) capable of producing lactic acid.

Fourth, That the acid, in his infected culture fluids, is formed in sufficient quantity to decalcify sections of dentine, while in those not infected with the micro-organisms the sections remained unchanged. Dr. Black then said: "This, when compared with the best experimentation previously made, marks a great advance. One point seems to have been gained. One organism has been traced thus far, and may now be said to have been proven to be able to produce certain of the phenomena of decay. But this is not all. There is much yet to be done. True, one other point is spoken of by Dr. Miller. All who have made a careful study of caries know that there is a peculiar enlargement of the tubules, which is not seen in dentine softened by acids alone. Dr. Miller has been looking for this also, and not without success; for in some sections of dentine exposed to the action of the cultures, he found the organisms crowding into the tubules, and tells us that he also found them enlarged, as in natural caries of the teeth in the mouth; indeed, that he had before him veritable caries, artificially produced.

* * * There is nothing in these experiments that is not in harmony with known facts, unless it be the widening of the tubules

by the crowding in of the organisms. It is known by previous experiments that this widening is not caused by the lactic acid as it exists dissolved in the surrounding medium, and I think very few will be willing to concede that the organisms can accomplish this by physical force. This point requires further investigation, and its study will doubtless lead to further discoveries. * * * Now this widening of the tubules is a conceded fact. It is also shown that it is not done by the lactic acid, nor can it be done by the physical force of the organisms, but it can, in all probability, be done by the digestive fluid of the organism."

Dr. Black believes that there will be other organisms discovered capable of producing dental caries, viz: the organism of the butyric fermentation, possibly of the acetic, and a large number of other acid fermentations, and thinks also that it may be caused by other vital processes than the acid fermentation.

In explaining the *modus operandi* of the *bacterium lactis* in causing decay, he says: "I have repeatedly said that the waste products of an organism prevented the activity of that organism, when collected in a certain amount. How, then, can this organism continue to thrive in its own waste product, and thus continuously promote caries by furnishing more, and still more, of this waste product? Simply enough. Every chemist who has studied lactic fermentation has been in the habit of introducing some form of lime into the fermenting fluid, to "fix" the lactic acid, in the form of a lactate of lime, in which case it does not hinder the progress of the fermentation. * * * Now, in the production of caries, the tooth presents the lime for the formation of the lactate, and thus furnishes the very conditions necessary to the continuous growth of the organism."

He also called attention to another class of phenomena which may possibly participate in the production of caries, viz.: Tissues otherwise normal, when under certain forms of inflammation throw out an irritating acid fluid, producing excoriation of the skin, etc. Dead bone, ivory driven into the flesh, sponge, cat-gut ligature, etc., are dissolved and removed. The query is then raised whether a substance may not be formed in the same way in the mouth, and produce the phenomena of caries.

Of this he said he was thoroughly convinced, years ago, but attempted to explain it as being caused by the formation of an acid.

"Soluble ferments do not seem to depend for their action on either acidity or alkalinity. They seem to be controlled by some other than the known chemical laws, and their action is not yet understood. We have no means of explaining them. If a piece of ivory thrust into the flesh is attacked and burrowed out by a secretion thrown out by virtue of the irritation induced, why may not a tooth be attacked in the same way, by virtue of an irritation of the tissues about the neck, or during the irritation consequent upon its eruption, when this is unusually prolonged? As a matter of fact, it has been observed that decays are prone to occur in just such situations as tend to confirm this hypothesis."

He claimed that this was one of the "first steps," though not the only one, in the initiation of decays, by which other forces coming later are enabled to get a foot-hold, and that this effect is produced only when "the tissues are in contact or very close proximity," because if otherwise the secretion would be lost in the fluids of the mouth before it could have time to produce its effects upon the tooth structure. The teeth most often affected are the wisdom teeth, that erupt very slowly, the buccal surface of the molars generally, and the labial surfaces of the superior incisors. If noted early in its progress, it will be found that it differs materially from other forms of decay, in that it always has its beginnings under the free margins of the gums, produces no visual change in the appearance of the tooth, except that it is rather whitish, but on probing a cavity of slight depth is disclosed. Often it happens that the enamel is so softened that it can be scraped away over a considerable surface, sometimes extending into the dentine.

Occasionally these characteristics are manifested in the crowns of the wisdom teeth, and sometimes in the first molars, when eruption has been slow and the gums in a state of chronic irritation for a long period. Imperfections in structure are not necessary to prepare the way for its manifestations, for it as often appears upon the smooth surfaces as in pits or crevices.

Those cases of decay occurring in persons of middle life or

older, and sometimes in young persons, which have their seat at the junction of the enamel and cementum, are many times of the same character, having their beginning in some irritation of the gum at the immediate spot. If these are closely examined early in their history, "it will be found that the cementum has been removed, and the enamel has become chalky; soon after this, if the case continues to progress, the gum becomes everted so as to expose the breach in the tooth," and it is many times exquisitely sensitive. After a few weeks, or months, the sensitiveness may cease, and then it will be discovered that the case has taken on the characteristic features of caries. In other cases progress is arrested, and it assumes a dark color, or it may run a rapid course, maintaining an ashy tint.

The paper closed with the opinion that this form of decay was caused by a soluble ferment, produced at that point by the irritation to the tissues in contact with the tooth, in precisely the same way that a chronic irritation of the peridental membrane causes a partial absorption of the root of a permanent tooth, and that the very common cases of decay occurring under plates at the free margins of the gums have their beginnings in the same way, the rapid progress of such cases being due to the eversion of the free edge of the gum, and the formation of a pocket by the aid of the plate, in which fermentation progresses under the most favorable circumstances.

DISCUSSION.

Dr. Marshall.—In Dr. Miller's experiments on dental caries, whether produced in the mouth or artificially in his culture fluids, he invariably found an enlargement of the dental tubuli to the extent of the penetration of the affection, and that the tubuli were filled with micro-organisms.

Dr. Bödecker, of New York, found the same enlargement of the tubuli, but minus the micro-organisms, in his experiments with regard to the action of arsenious acid upon healthy dentinal tissue.

Dr. Black refers the cause of the enlargement in Dr. Miller's experiments under both conditions to the action of a soluble fer-

ment produced as a waste product, by the *bacterium lactis*, and which dissolves or digests the organic portion of the tubuli, and the inorganic material surrounding it, while Dr. Bödecker refers the condition found in his experiments to inflammatory action, resulting in absorption caused by the irritation of the arsenious acid.

I would like to ask Dr. Black whether he considers the conditions found by these gentlemen to be identical.

Dr. Black—I will first say that I do not regard the results as caused in both cases by the *bacterium lactis*, but in both cases the results are brought about, in all probability, by a digestive body. The action in each instance is the same in kind. The philosophy of the widening is the same in both instances, the difference being that the digestive bodies that do the work are produced by different forms of life. In the case of Dr. Bödecker's experiments the conditions described could only be due to the formation by the irritated dentinal fibrils of a menstrum which digests and removes the tubular wall. In Dr. Miller's experiments the bacteria form a menstrum which digests and removes the walls of the tubuli.

In the case of the *bacterium lactis*, a digestive body or diastase has now been demonstrated by Dr. Miller. The organism is fully proven to be able to perform the act of digestion, and we know that the tissues of the higher animals have the power of removing parts by what is usually called absorption, and which is a form of digestion.

It has been well shown that the pulp chamber may be enlarged in this way in cases of long-continued irritation of the pulp. Bone is also easily removed under pressure, evidently by a similar vital process, that of digestion by means of a digestive body.

Dr. Allport.—Dr. Bödecker's experiments with arsenic upon dentinal tissue (though not yet fully completed), were upon living tissue, and evidently prove that there was inflammatory action set up in the tubules, causing absorption of material. Dr. Miller's experiments were upon dead tissue (teeth out of the mouth), and the action seems to have been a chemical one. In the first, the process was a vital one, and may be in kind like that manifested in

the absorption of the roots of deciduous teeth, the removed material being largely taken into the general circulation, which may have been re-moleculized and converted into new tissue, or carried off as a waste product; while in the other case, the action was entirely from without, and would seem to have been from acids, and independent of vital processes within the tissues. I can imagine how micro-organisms may produce a sufficiently exalted irritation of the dentinal fibers to cause absorption of material similar to that produced by the irritation of arsenic in the experiments of Dr. Bödecker. But in either of these conditions I should expect the changed material would be largely carried off in the general circulation, the same as it is in the enlargement of the pulp cavity consequent upon continued irritation of the pulp, as suggested by Dr. Black, or the absorption of the roots of the deciduous teeth. In both cases the organic and inorganic materials are removed entire, while in caries occurring in the mouth, the inorganic material only is largely removed, the organic portion remaining behind to die, be decomposed, and washed away, or pass off in gases. In the experiments of Dr. Miller, the action is external and chemical, resulting in a simple change of the elements, and the removal consequent upon the affinity of lime for acids. Whether the fungi excrete an acid or not (and more than likely it does), is of no material consequence, so long as the acid is found there. It is the affinity of lime for acids, no matter how produced, whether from a decomposition of foreign matter or excreted by the fungi, that, to my mind, produces the changed condition in the devitalized dentine. I have, of course, been much interested in the arguments and experiments of Drs. Black and Miller. They are highly interesting, and there is little doubt that we are approaching a correct solution of this vexed question, but it will be well to pause before we pronounce too confidently that either of these gentlemen accounts for all the phenomena of dental caries.

Dr. Williams.—May not the enlargement of the tubules be caused by the physical force of the micro-organisms exerted upon the walls of the tubules? In the vegetable kingdom such instances are not of rare occurrence. Rocks have been split, and large masses of

solid material moved by the continued pressure of fungous growths.

Dr. Friedrichs.—Milles and Underwood first called attention to the enlargement of the dentinal tubuli, and they presented microscopical specimens to substantiate their views. Dr. Bödecker's experiments do not prove anything. I would not put much reliance upon the observations of *two* experimenters. I think we are begging the question. Some observers can see whatever they desire to see, and later, their observations are proved to be worthless. May not the enlarged appearance of the tubuli be due to the methods used in preparing the slides?

Dr. Allport.—Would suggest that Dr. J. L. Suesserott, of Chambersburg, Penn., be invited to speak upon this subject.

Dr. Suesserott.—I am certainly very much pleased with the paper just read by Dr. Black. It proves the truth of the lines by Butler, that—

* Large fleas have little fleas,
And these have fleas to bite 'em;
And there are fleas to feed on these,
And so *ad infinitum*.

Various remedies have been introduced for the antiseptic treatment of surgical diseases, the most potent of which is bichloride of mercury. As used in general surgery, a solution of 1 to 1,000 is perfectly harmless, and I do not see why it might not be used with safety and success in the treatment of dental caries.

Dr. Harlan.—The *bacillus anthrax* and the *bacillus tuberculosis* can live in absolute alcohol, and also in a five per cent. solution of chloride of zinc. In order to know how to destroy micro-organisms, we must study the individual organism, and apply the special agent which will destroy their vitality. Eugenol, in the strength of 1 in 75,000, will destroy bacteria, and a weak solution will prevent the development of the spores.

Dr. Black.—I quoted an expression of Dr. Miller, saying it was unfortunate, viz: "the first stages of dental caries consist in a

* "So, naturalists observe, a flea
Has smaller fleas that on him prey;
And these have smaller still to bite 'em,
And so proceed *ad infinitum*."—Jonathan Swift.

decalcification of the tissues of the teeth by acids, which are for the greater part generated in the mouth by fermentation." This is the same question discussed of old, of who led the pig to market, the man or the string. The string is the means used by the man, and the acid is the means used by the micro-organisms, but the acid can no more cause decay, or even exist in that position without the organisms, than the string can exist and lead the pig without the man. The micro-organisms that produce caries must have free oxygen. Therefore, if you plug a tooth perfectly over a little softened dentine, you exclude the free oxygen, and destroy the organisms. It is possible, of course, that an organism not requiring free oxygen might produce caries, but all the evidence we have is against that supposition.

Dr. Friedrichs.—It seems to me we are still begging the question. What is the need of antiseptic treatment of caries if micro-organisms cannot exist without free oxygen? When a cavity of decay is hermetically sealed, no oxygen can enter, and, consequently, micro-organisms cannot develop.

Dr. Marshall.—It has been proved by Pasteur, that there are certain forms of micro-organisms that exist without free oxygen; in fact, cannot develop in that medium; and it is not at all improbable that such micro-organisms may exist as factors in the cause of secondary caries.

Dr. Black.—Closed the discussion, by saying: We must come to the point of finding specific antiseptics for specific micro-organisms. A poison for one form is not necessarily a poison for another. Only about seventeen per cent. of alcohol can be produced by the yeast plant, because the excretory product of the plant—alcohol—in this degree of concentration becomes a poison to the plant, and prevents further growth. This same alcohol, however, is the natural food of the *mycoderma aceti*.

This plant produces acetic acid, which in turn will stop the growth of its plant at a certain degree of concentration. This will now become the food of other organisms. So it is; that which is poisonous to the one is not, necessarily, poisonous to another. Certain diseases occur in the adult. We believe some of these diseases

are produced by micro-organisms. There is some difference in the nature of the tissues or fluids in the two cases that renders the adult unfavorable soil for the growth of these organisms. This gives some hope that in the continuous round of research some means may be found of antagonizing micro-organisms without a resort to poison, such as is now done. These will certainly be different for different organisms.

On motion, it was agreed that, owing to the lateness of the hour, the reading of the paper by Dr. Harlan be deferred, and that it be the first order of business at the session to-morrow. The session then adjourned to meet at 2 30 P. M. to-morrow.

(TO BE CONTINUED.)

Editorial.

TO CONTRIBUTORS.

This number of the INDEPENDENT PRACTITIONER has been enlarged to sixty-four pages. Notwithstanding this, considerable matter that should have been published in it, and which we are as desirous to present as any one can be to see, is inexorably crowded out. Each month we pack in all that it is possible to get between the covers, and each month desirable articles must lie over. In this number there should have appeared reports of the Chicago Dental Society, of the Central Association of Northern New Jersey, and of the Northern Ohio Dental Association, all of them excellent reports, besides a number of good articles, some of which were sent in at our personal solicitation. Thanks, kind friends, for your appreciative favors. They shall see the light at the earliest possible moment. We do not care that editorial and book notices are excluded; we have but few briny tears to shed when our associates are shut out; we can submit with fortitude to a knowledge of the fact that extracts and stale matter of all kinds can find no place; but it is a source of sorrow when desirable and instructive communications must wait their turn. Help the journal to enough of subscribers to warrant the outlay, and its size shall be made sufficient to contain

everything desirable. But none of our syndicate has any private business to boom, nor any personal axe to grind, and, therefore, our outlay must in a measure be limited by what we receive.

THE HALF YEAR.

In this number the series of articles by Dr. Miller upon "Fermentation in the Human Mouth" is brought to a close. They have attracted wide-spread attention, and form a valuable contribution to the permanent literature of the profession. Every dentist who pretends to keep pace with the advance of thought in his chosen field should become familiar with them. That this opportunity may be afforded all, we have had them reprinted in a handsome pamphlet form, and the complete series may be procured at the office of the *INDEPENDENT PRACTITIONER* for fifty cents per copy.

There is another way in which the work may be obtained. We will send a copy to every new subscriber to this journal, and we could not offer a better premium. Dr. Miller will continue his contributions, and all his original work will be given to the profession through the *INDEPENDENT PRACTITIONER*, for he is now one of its proprietors and publishers. The record the journal has made during the year in which it has been under its present management is a guarantee of what the coming volume will be, although we think that added experience and increased facilities will enable us to do better in the future than we have in the past. Every dollar that is sent us for subscriptions will be expended in making the journal better. May we not, then, ask its friends to do what they can to obtain for it new subscribers? All subscriptions should commence with the January or July number.

PERSONAL—OUR COLLEAGUE.

Dr. W. D. Miller landed at New York from Bremen, Friday P. M., June 20th. Due preparation had been made to welcome him, and on Saturday evening he was tendered a complimentary dinner at the Union League Club, by a few gentlemen who are familiar with

the special work in which he has been engaged. Dr. Miller's stay was too brief to allow time for much consultation, and the necessities of the case limited the number taking part in it to a very few. This was a source of regret, but was unavoidable. One of those present, a former classmate of the guest of the evening, sends us a brief notice of the dinner, which will be found among the items of "Current News."

He was the guest of the dentists of Buffalo on Monday evening, and on Tuesday evening was entertained at dinner by members of the Microscopical Society of the same place. He sails for home on the 23d inst., and in the meantime has friends and relatives to visit whom he has not seen for years.

We speak of these personal matters, not in a sycophantic spirit, but because many friends and admirers of Dr. Miller have expressed a desire to meet him, while the limit of his time in this country utterly precludes the possibility of his making visits to professional brethren who do not live on the line of his necessary travel between New York and his native place—Newark, Ohio.

AN IMPORTANT DECISION.

In this number will be found a very important legal decision in which the Supreme Court of the State of Illinois affirms the authority of State Dental Societies, or Examining Boards, to determine what are "reputable dental colleges" whose diplomas may be recognized as authority and license for the practice of dentistry. Application was made to the court for a mandamus, compelling the Dental Examining Board of the State of Illinois to recognize a diploma granted by the Indiana Dental College. The decision affirms the fact that in making this determination the Board acts in a judicial capacity, and that from its action there is no appeal. It is evident that had the decision been otherwise, there would be no check whatever upon colleges, and they would have been able entirely to control and dominate the profession, and admit to practice whom they pleased. Wisconsin colleges might have multiplied, and we should be forced to acknowledge every fraudulent diploma issued.

Current News and Opinion.

THE DINNER TO DR. MILLER.

It is a good and ancient custom for a body of men, when they wish to show their appreciation of the qualities of another, or to acknowledge their indebtedness to him for light upon dark questions, to give a dinner in his honor. When they have very particular reasons for delighting to honor a colleague they are extremely fortunate, and much more successful in their object if the management of the affair can be in as good hands as was the dinner in the "Diamond Alcove" of the Union League Club House, New York, on Saturday evening, June 21, in honor of Dr. Willoughby D. Miller, of Berlin.

In the five short years since Dr. Miller's graduation he has made for himself a name second to none among original investigators with the microscope, and the profession owes much to his careful, patient study, and the trained eyes which know what they see. The presence of living organisms in dental caries has been known for some years, but that they were such important factors in producing decay has only recently been discovered, and it has been left for Dr. Miller to give a careful and satisfactory explanation of their destroying methods.

All the requisites for a perfect evening were present on Saturday; a distinguished guest, a dignified and Apollo-like toast-master, a faultless *menu*, and an appreciative head for each of the sixteen pairs of feet which were thrust under that noble mahogany. Anecdotes and pleasing jests were heard, some recitations by one who, with equal talent for each, simply prefers dentistry to elocution, speeches of welcome, congratulation, and acknowledgment—off hand they were, but sincere and from the heart—all present being well pleased that one who is doing so much for dental science as Dr. Miller should be so loyally true to his country and countrymen as to desire a position and name in America above all else, and the first publication here of the results of his investigations.

A happy occasion, and one never to be forgotten.

S. E. D.

SUPREME COURT OF ILLINOIS.

OPINION FILED MAY 19, 1884.

THE PEOPLE OF THE STATE OF ILLINOIS *ex rel.* ISAAC A. SHEPARD v. THE
ILLINOIS STATE BOARD OF DENTAL EXAMINERS.

Petition for Mandamus.

POWER OF BOARD—LICENSE TO PRACTICE DENTISTRY.

1. *Held*, That the board has power to determine whether the applicant for license has graduated from a "reputable dental college"; that in making this determination it acts in a judicial capacity, and from its decision in this respect there is no appeal.

2. **MANDAMUS.**—That in certain cases, the court could by mandamus compel the board to act, but it could not compel it to act in a particular manner.
—*Ed. Chicago Legal News.*

Opinion by SCHOLFIELD, J. It is provided by the first section of an act approved May 30, 1881, entitled "An act to insure the better education of practitioners of dental surgery, and to regulate the practice of dentistry in the State of Illinois," "that it shall be unlawful for any person who is not at the time of the passage of this act engaged in the practice of dentistry in this State, to commence such practice unless such person shall have received a diploma from the faculty of some reputable dental college, duly authorized by the laws of this State, or of some other of the United States, or by the laws of some foreign country, in which college or colleges there was at the time of the issue of such diploma, annually delivered a full course of lectures and instruction in dental surgery * * *." And in the sixth section of the same act, after providing for examination, before the board of dental examiners, of all applicants for license to practice dentistry, is the following provision: "But said board shall, at all times, issue a license to any regular graduate of any reputable dental college without examination upon the payment of such graduate, to the said board, of a fee of one dollar * * *."

Other provisions of the act prohibit any person to practice dentistry without a license from the board, except such as are properly enrolled as having been practitioners at the time of the passage of the act. The contention of the relator is that the board of dental

examiners have no power to decide what is or what is not a "reputable dental college;" that the law has, itself, defined what is a "reputable dental college," in providing that it shall be "duly authorized by the laws of this State, or some other of the United States, or by the laws of some foreign country, in which college * * * there was at the time of the issue of such diploma, annually delivered a full course of lectures and instruction in dental surgery."

We are unable to appreciate the force of this position. The word "reputable" would seem to be used here to express the meaning ordinarily attached to it. If it had been intended that a diploma from any dental college, or a diploma from any dental college "duly authorized by the laws of this State, or some other of the United States, or by the laws of some foreign country, in which college * * * there was at the time of the issue of such diploma, annually delivered a full course of lectures and instructions in dental surgery," we must presume the language would have so said. By using the word "reputable" we must presume the General Assembly meant "reputable." And since it is not used as being the equivalent and convertible for the other requirements in regard to the college, but as in addition thereto, we must presume it was intended to be so construed. As a part of the current history of the times and as an aid in arriving at the legislative intention, we know there were colleges of different kinds, authorized by the laws of States in which they were located, in which there were pretended to be annually delivered full courses of lectures and instructions upon the arts and sciences professed to be taught, that were not "reputable," because they graduated for money frequently without any reference to scholarship. A diploma from such an institution afforded no evidence of scholarship or attainments in its holder. It was a fraud, and deserved no respect from anybody. And it was as against such diplomas the law was intended to protect the public, and therefore required that the colleges be "reputable." Whether a college be reputable or not is not a legal question, but a question of fact. So, also, are the requirements in regard to the actual delivery of full courses of lectures and instructions. These questions of fact are, by the act, submitted to the decision of the board—not in so many words, but by the

plainest and most necessary implication. Their action is to be predicated upon the existence of the requisite facts, and no other tribunal is authorized to investigate them. And of necessity, therefore, they must do so. The act of ascertaining and determining what are the facts, is in its nature judicial. It involves investigation, judgment and discretion. The office of the writ of mandamus is, in general, to compel the performance of mere ministerial acts prescribed by law. It lies, however, also to subordinate judicial tribunals to compel them to act where it is their duty to act, but never to require them to decide in a particular manner. It is not like a writ of error or appeal, a remedy for erroneous decisions: *Judges of Oneida Common Pleas v. People*, 18 Wendell, 92. And as is said by the court in *People ex. rel. v. Com. Council of Troy*, 78 N. Y., 33, this principle applies to every case where the duty, performance of which is sought to be compelled, is in its nature judicial, or involves the exercise of judicial power or discretion, irrespective of the general character of the officer or body to which the writ is addressed. A subordinate body can be directed to act, but not how to act, in a matter as to which it has the right to exercise its judgment. The character of the duty, and not that of the body or officers, determines how far performance of the duty may be enforced by mandamus.

Where a subordinate body is vested with power to determine a question of fact, the duty is judicial, and though it can be compelled by mandamus to determine the fact, it can not be directed to decide it in a particular way, however clearly it be made to appear what the decision ought to be.

See also *Kelly et al. v. City of Chicago*, 62 Ill., 279.

Illustrations of the principle will be found in *People v. Common Council of Troy supra*; *Freeman v. Selectmen*, etc., 34 Conn., 406; *Hoole v. Kinkead*, 17 Nevada, 217; *Bailey v. Ewart*, 52 Iowa, 111; *Berryman v. Perkins*, 55 Cal., 483; *People v. Contracting Board*, 27 N. Y., 378, and other cases cited in argument by the Attorney-General.

The demurrer here does not admit that the board of dental examiners found that the college at which the relator was gradu-

ated was reputable, although it does admit that to be the fact. But since the board can not be compelled to decide the question that way, although the evidence might clearly sustain it in doing so, there is no ground for mandamus.

The demurrer must be sustained and the petition dismissed.

Petition dismissed.

MEETING OF DELEGATES.

Delegates to the National Dental Association, and others who may act in a representative capacity, will meet in Washington City July 22, at the Ebbitt House, where reduced rates have been made. Reduced railroad rates may be obtained by unity of action on the part of those who will attend from States or sections. Everything indicates a large meeting for organization. Enough States have already elected delegates to insure a good attendance and a profitable meeting.

The acceptability of the place has been shown by the large number of favorable responses from every section of the United States.

The profession of America will unite for one purpose and for one common cause, to-wit: To build up the honor and name of our calling. An organization will be put forth in which self will be lost to the good of the order. Unity and action will be brought about; brotherly love of every section will be united. An association will be formed that will fill the heart of every American dentist with pride and stimulate to higher aims and nobler purposes.

B. H. CATCHING, Correspondent.

ATLANTA, GA., June 14, 1884.

A consummation devoutly to be wished. But can Dr. Catching give any guarantees concerning the dawn of this professional millennium? We sincerely hope this body will meet and sit. Who knows? It may hatch out a new Cosmic egg. We have but four National Dental Associations now. Surely there must be abundant room for a fifth. If multiplying national societies will produce a united, harmonious profession, there is great hope for us. But until this be demonstrated we shall stick to the old ship, even though she may leak a little. Before we take to the raft we will stand a while at the pumps.

Dr. Frank Abbott authorizes the statement that his name was signed to the call for this meeting without his knowledge or consent.—EDITOR.

NEW JERSEY STATE DENTAL SOCIETY.

The fourteenth annual session of the New Jersey State Dental Society will be held at Asbury Park, commencing at ten o'clock Wednesday morning, July 16th, and continue in session three days. Several papers of great interest to the profession, by members and eminent practitioners of sister societies, will be read. Many promises have been received from dental dealers of the exhibition of new appliances, and every inducement will be given inventors in furthering the exhibition of anything new or useful to the profession by consulting Dr. J. W. Scarborough, Lambertville. The headquarters will be at the Coleman House, the largest and most commodious in the Park, directly fronting and within fifty feet of the surf, having a large hall for the meeting, open on all sides, connected with the hotel. A delightful situation, cool, easy of access from all parts of the State—Philadelphia and New York—low rates and excellent cuisine. The profession generally, members or not, are most cordially invited to meet with us, and spend three days of recreation and profit.

CHAS. A. MEEKER, D. D. S., Sec'y.

NEWARK, N. J., June 9, 1884.

PENNSYLVANIA STATE DENTAL SOCIETY.

The sixteenth annual session of the Pennsylvania State Dental Society will be held at Wilkesbarre, Pa., July 29th, 30th, and 31st, 1884.

Wilkesbarre is situated on the north branch of the Susquehanna River, in the beautiful and picturesque valley of Wyoming.

Hotel accommodations are equal to any in the State, the Wyoming Valley hotel having accommodations for three hundred guests. Rates at this house have been reduced from \$3.50 to \$2.50 per day, to delegates and their families. Excursion tickets can be had over the following roads: The Lehigh Valley R. R. will sell tickets to Wilkesbarre July 21st and 22d, good to the 26th inclusive, without special order. The Bloomburg Division of the Delaware, Lacka-

wanna and Western will sell regular excursion tickets from all stations on the line. The Philadelphia and Reading, the Pennsylvania and branches, will sell special tickets over their lines. Orders for which (or other information) can be had by addressing

W. H. FUNDENBURG, Cor. Sec'y,
958 Penn Ave., Pittsburg, Pa.

DENTISTS' BENEVOLENT ASSOCIATION.

The first annual meeting of the DENTISTS' BENEVOLENT ASSOCIATION will be held at Sweet Springs, Salina Co., Mo., Thursday, July 10, 1884.

This Association is composed exclusively of dentists and dealers in dental materials, and has for its object financial aid and relief to the families of deceased members. Every member of the profession should be interested in such a movement, and is cordially invited to attend and lend a helping hand toward future success.

As the meeting takes place during the session of the Missouri State Dental Society, arrangements have been made for [reduced railroad and hotel rates. Any one desiring to attend is requested to communicate with the Secretary.

| | |
|---------------------------|-------------------------|
| | C. H. DARBY, President, |
| R. I. PEARSON, Secretary, | St. Joseph, Mo. |
| 2206 Troost Ave., | |
| Kansas City, Mo. | |

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The second annual meeting of the National Association of Dental Examiners will be held at Saratoga Springs, N. Y., on Friday evening, Aug. 8, 1884.

All Boards of Examiners are urgently requested to send representatives to this meeting, as matters of great importance are expected to be brought before it.

GEO. H. CUSHING, Secretary.

SOCIETY MEETINGS FOR JULY, 1884.

Wisconsin State—Third Tuesday, at Milwaukee.
New Jersey State—Third Wednesday, at Asbury Park.
Pennsylvania State—Last Tuesday, at Wilkesbarre.
First District New York—New York, first Tuesday evening.
Missouri State—Sweet Springs, second Thursday.
Chicago City—First Tuesday evening.
Northwestern—Grand Forks, Dak., third Tuesday.
Odontological—New York, third Tuesday evening.
Odontographic—Philadelphia, first Wednesday evening.
St. Louis City—First Tuesday evening.
Washington City—Second Tuesday evening.
American Dental Association—Saratoga, August 5th.

CHANGES PRODUCED IN THE TEETH BY SYPHILIS.

(*From Abstract in Jahrb. f. Kinderh., B. XX. H. 4.*)

Among the phenomena which are noticeable in connection with hereditary syphilis, are certain ones which are referable to the formation of the teeth. 1. They may be late in making their appearance. Demarquay records a case in which a child, four and one-half years of age, had not had any. 2. Certain changes in their structure are observable. Among these may be mentioned erosions, as the so-called nail marks of Hutchinson. These erosions are crescent shaped, and are located upon the border of the upper central incisors; also microdontism, or dwarfed condition of the teeth; amorphism, in which there are peculiarities in each group—susceptibility to injury which causes them quickly to wear out or to fall out.—*Archives of Pediatrics.*

AMERICAN DENTAL ASSOCIATION.

The twenty-fourth annual session of the Americal Dental Association will be held at Saratoga Springs, N. Y., commencing at 10 A. M., on Tuesday, Aug 5, 1884.

GEO. H. CUSHING, Rec. Secretary.

(11.) I am glad you have a question department, for I believe it a very profitable part of your already excellent journal. Much useful information may come from it that many of your readers desire. I would like to obtain a formula for making good gold solder that will flow easily, and not eat into the plate. Will somebody please furnish such a formula? F. L.

(12.) Is it, as a rule, of any benefit to a child to fill the deciduous teeth after the pulps are dead? Are they not more likely to give trouble if filled, than if the cavities are left open? D. D. S.

(13.) I desire to ask whether, from a professional standpoint, tobacco is regarded as beneficial to the teeth? If it be, do the advantages outweigh the manifold disadvantages? I am not a practicing dentist, but a woman who reads your journal quite regularly. I am debarred by my sex from obtaining any possible benefits from tobacco. I have frequently heard it asserted that it preserves the teeth, and would be glad to know what is the prevailing professional opinion upon this subject. M. W. L.

Answers.—In reply to question No. 7, in the June number of the **INDEPENDENT PRACTITIONER**, let me refer to the fact that fillings of gold and tin, introduced by our old first-class operators, have stood side by side for years, harmoniously tolerating each other's presence, and with no apparent evidence of mischief from chemical or galvanic conflicts. I have also used Robinson's tin mats for lining the cervical walls of such cavities, and then completing with gold foil. In such cases I feel sure of a more perfect adaptation of the filling to the calcareous walls, and safer and more durable stoppings than when gold is used.

C. E. F.

In answer to "L." (No. 9), in the last number of the **INDEPENDENT PRACTITIONER**, I would say that "Electric" gold was so named because it was primarily designed to be used with the electric mallet, although it has since been found desirable for either hand or hand-mallet pressure.

Its peculiarities are cohesiveness in the highest degree, combined with softness under the instruments, together with a very convenient form for using.

ONE WHO USES IT.

Inquirer (No. 10) desires information concerning the administration of anæsthetics *per rectum*. This has been engaging the attention of medical men lately, but it is not meeting with unqualified commendation. The method is to introduce a tube connected with the ether or chloroform bottle some distance into the rectum. The bottle is then placed in water heated to about the boiling point of the anæsthetic. The vapor passing into the large intestine is absorbed, and in a few moments the odor may be detected in the breath. It is claimed that anæsthesia may be obtained without any of the bronchial irritation or nausea induced by the usual administration, and there is no "excitement stage." But such severe intestinal irritation has in a number of cases supervened, that the method is not gaining ground. ED.

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The absolute safety of Listerine, combined with its agreeable properties, gives it unquestionable superiority **for oral diseases and internal use** over all other antiseptics notably those whose deadly nature requires their administration only under the highest dilution and where commercial differences, the slightest mishap or idiosyncrasies may bring disaster. The formula of Listerine, no less than the uniformly good practical results following its use sustains the claim that it possesses something more than mere mechanical germicidal properties.

- ☞ Taken internally in teaspoonful doses, Listerine arrests the fermentative eruptions of dyspepsia, so often associated with or resulting from oral disease.
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- ☞ For cleansing and in operations the dilution has been varied from one to twenty parts water and one part **Listerine**, according to conditions and taste.
- ☞ Note its value as a menstrum, its miscibility with glycerine, etc.

The value of Listerine has been thoroughly determined by very many of the Dental Profession, and a pamphlet embodying its Formula and Reports from the following and many other well-known dentists will be forwarded gratis upon request and the mention of this journal.

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 C. W. SPALDING, M. D., D. D. S., St. Louis.
 HENRY S. CHASE, M. D., St. Louis.
 J. TAFT, M. D., D. D. S., Cincinnati.
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 A. O. RAWLS, D. D. S., Lexington, Ky.
 W. C. WARDLAW, D. D. S., Augusta, Ga.
 J. B. PATRICK, D. D. S., Charleston, S. C.
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 F. J. S. GORGAS, M. D., D. D. S., Balto.
 R. FINLEY HUNT, D. D. S., Washington.

LAMBERT & CO., Manufacturing Chemists,
 307 Locust Street, ST. LOUIS.

THE Independent Practitioner.

VOL. V.

AUGUST, 1884.

No. 8.

Original Communications.

TIN AND GOLD COMBINED AS A FILLING MATERIAL ELECTRICALLY AND PRACTICALLY CONSIDERED.

BY W. D. MILLER, BERLIN.

It is not known who first ventured to use a combination of tin and gold for filling teeth. About 18 years ago a gentleman called upon Dr. Abbot, Berlin, to have his teeth examined. In one of them Dr. Abbot found a discolored filling, having the appearance of amalgam, and remarked that it was the best amalgam filling he had ever seen, to which it was replied that the filling consisted not of amalgam, but of a mixture of tin and gold foils. Since that time Dr. Abbot has used this filling material in his practice very extensively, and in former years strongly recommended it to the profession. It has, however, been adopted by only a limited number, owing, no doubt, in part to the prevalence of a wide-spread superstition that the electricity attendant upon such a filling will in some way or other be injurious to the tooth. The electrical conditions connected with a filling of this nature can be understood only when the arrangement of the two materials in the filling is perfectly appreciated. The material is prepared by laying from 1-6 to 1-3 of a sheet of No. 4 non-cohesive (Abbey) gold foil upon a similar strip of No. 4 tin foil, and twisting between the fingers into a soft crumpled roll.

It is immaterial whether the tin or the gold is on the outside. Some prefer the former; others the latter. Frequently both materials appear on the surface, something like a barber's pole. These rolls are worked in the same manner as strips of non-cohesive foil, or they may be cut into pellets and worked as non-cohesive cylinders. It follows from this method of preparing the material that the two elements, tin and gold, must be pretty evenly distributed throughout the mass.

There result accordingly upon the surface of such a filling an indefinite number of indefinitely small electric currents flowing in all directions. Since, however, it could happen only by chance that a very great excess of those currents would be directed towards the margin or surface of the cavity, it is not possible to see how any action, either upon the hard tissue of the tooth or upon the pulp, could result from them. We will find a definite negative solution of this question further on.

A question which has given rise to some discussion in America is that regarding the influence which the tin is said to have upon the supposed electrical condition of the tooth itself. We have been told that by lining the walls of the cavity with tin, "the tin being electro-positive, makes the tooth electro-negative, and therefore the tooth is guarded from injury from acids." This explanation is very short, but nevertheless involves some very considerable errors:

First. The supposition that the tin must be placed on the outside to insure success is not in accordance with the facts; it is quite immaterial which is outside; in fact, Dr. Jenkins, who next to Dr. Abbot has had more experience in this matter than any other living man, always folds his rolls with the gold outside.

Second. The tooth being a non-conductor cannot receive a potential, either positive or negative, by mere contact with a metal. This point I established some years ago so clearly that even those of contrary persuasion could offer no other objection than that my experiments were made with normal dentine, and that carious (decalcified) dentine would have given other results because of the electric current between the metal and the organic portion of the tooth. Even this objection is, however, merely fanciful, because the

dentine used in my experiments, though normal at the very beginning of the experiment, was not so five minutes later, and at no subsequent moment during the whole course of the experiment, on account of the decalcification produced by the acid solutions in which it was immersed.

Third. Granted that an electric element *could* be produced by the contact of gold with tooth-bone in the fluids of the mouth, the electro-motive force of such an element would not be changed in the slightest degree by interposing tin between the gold and dentine, the difference of potential between any two conductors being independent of the number of conductors which may be interposed between them. For example, in each of the following series, the difference of potential between the gold and dentine would be the same: 1) gold-dentine: 2) gold-tin-dentine: 3) tin-gold-dentine: 4) gold-tin-copper-zinc-etc., etc., etc.-dentine. Consequently by interposing tin between the gold and dentine we would not prevent or reverse the current; we would only increase to a certain slight extent the resistance of the cell. We would, however, obtain a second current (between the tin and dentine), and a third (between the tin and gold).

As for the first and second current, (between gold and dentine, and between tin and dentine,) whether they would flow in the same or in opposite directions we do not know; the supposition that the dentine is electro-negative to tin and electro-positive to gold, being by no means entitled to the dignity of an established fact.

The explanation offered above is consequently faulty. First, because it presupposes a state of things different from that which really obtains; second, because to account for this supposed state of things, it assumes an electrical condition of the tooth which has been proven not to exist; third, because the conclusions given as the result of this assumed electrical condition are not based strictly upon facts, either experimental or theoretical.

Since I have been in the practice of dentistry I have made over one thousand fillings of tg* and have had the opportunity of observing at least as many more, partly made with the tin next the walls,

*I use the symbol tg to denote a combination filling of tin and gold.

partly with the gold next the walls, partly mixed, many also begun with tg and finished with gold alone; I have not been able to detect the slightest difference in the result, and cannot say that one method is better than the other. This is also the testimony of others who have used the material much longer than I have.

Again, the combining of tin and gold in one filling has in my practice had no effect upon the dental pulp. It is stated in text-books that it is bad practice to begin a filling with one metal and finish with another, that such an operation is likely to be followed by disastrous results, etc.; this for all combinations of tin and gold is not the case.

It is my practice to begin *all* fillings in large cavities, where the structure is poor or the dentine soft and sensitive, or where it is impossible to get a strong, sound margin at the neck of the tooth, or to secure perfect exclusion of moisture with tg, and then build the gold directly upon this; also all unaccessible points I fill with tg; also all deep pinhole cavities on the grinding surface I fill to one-third or one-half with tg and complete with gold, and I have yet to see the first case in which the slightest disturbance of the pulp resulted from this treatment.

We may say therefore that neither experimentally, theoretically, nor practically can any good or bad result be expected from the electrical action of a tg filling upon the tooth-bone; neither have we to fear a disturbance of the pulp from the use of tin and gold in any form in the same cavity. (Here, of course, no reference is made to those cases where a large gold filling in one tooth is brought into contact with a large filling of tin or amalgam in the adjoining tooth.)

We therefore, as far as the tooth is concerned, dismiss the question of electrical action altogether, and will now consider what are the qualities of tg which render it a desirable material for filling teeth.

First. It may be inserted with an ease and a rapidity scarcely equalled by any material in use. This is especially the case with shallow crown fillings. Medium-sized fillings of this class may be easily inserted in the time required to mix either amalgam or oxy-phosphate when the acid of the latter is in the form of crystals.

This property makes it particularly adapted for the treatment of the temporary teeth where the cement fillings generally prove a failure. Two minutes is abundantly sufficient for simple cavities in the temporary teeth. Again, for partially erupted teeth it may be used to a very great advantage. We often find molar teeth requiring fillings on the grinding surface when they are only half erupted.

To cut away the gum and adjust the rubber-dam and insert a gold filling would be a very long and painful operation, and even if its success were sure, it would be very impolitic to subject young patients to it; cement in such cases is useless, and amalgam, to many, for various reasons, objectionable. In tg we have a material which, with no other protection against moisture than a napkin, may be inserted in from two to five minutes, and will be equally permanent with the best gold filling, and often more permanent. This brings us to another excellent quality of tg, viz:

Second. The presence of a slight amount of moisture does not at all impair the success of the filling; it is even not sure, for reasons given below, but that the filling is benefited thereby. I have made a number of fillings, by way of experiment, completely under saliva; after a few weeks one cannot tell but that such fillings have been made with perfect seclusion of moisture. It cannot be denied that a filling material which is not injured by moisture possesses an enormous advantage over gold or cement.

This property may be well utilized in cases where it is not expedient to remove all the softened dentine, and where a complete sterilization of the cavity cannot be accomplished by a single application of the antiseptic. In this case the cavity may be thoroughly bathed in carbolic acid, or one per cent sublimate solution, and the tg inserted without drying; or the first piece may be dipped into one of the above-named antiseptics and placed in this state upon the floor of the cavity.

Third. Tg adapts itself with great readiness to the walls of the cavity, and may be used in saucer-shaped cavities where neither gold nor amalgam could be made to stay, except by means of strong retaining points or grooves.

Fourth. Tg in the course of a few weeks after insertion undergoes a marked change, the cause of which is not well understood ; it results in a discoloration of the filling (which sometimes is but slight and at other times amounts to complete blackness) ; furthermore, in a slight expansion of the filling, thereby making it water-tight, if it was not before.

If we remove the surface from an old tg filling, we will find beneath neither tin nor gold, but a semi-crystalline mass which it is sometimes impossible to distinguish from amalgam. This change as well as the slight expansion appears to take place sooner in a filling which has been inserted wet than in one inserted perfectly dry. For this reason I mentioned above that such a filling might even be benefited by a certain amount of moisture. As for the manner in which the discoloration, expansion and amalgamation (?) of such fillings are brought about, a number of theories might be offered ; there is little benefit, however, to be derived from a theory not properly supported by facts.

It is significant that an attempt to collect a sufficient number of old tg fillings to make a chemical study of the question did not succeed, it being exceedingly rare that a filling either becomes loose or requires renewing, whereas, as we all know, our gold fillings are failing almost daily.

To recapitulate. Tin and gold used in the manner first advocated by Dr. Abbot owes its virtues to the ease and rapidity with which it may be inserted, to its marked adaptability ; to its freedom from injury by moisture, and to its slight expansion after insertion. It does not owe its any virtue to any supposed electrical action upon the tooth itself.

TREATMENT OF DISEASES OF THE MOUTH.

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In the May number of the *INDEPENDENT PRACTITIONER* there is a query in regard to the use of Homœopathic remedies in the treatment of diseases of the mouth. My experience has proved that remedies may be used in much less strength than they are com-

monly employed, and produce results that could seldom be attained by the use of heroic doses. For this purpose I use the so-called "Homœopathic remedies," as they are prepared in a certain manner, and one can tell at a glance how much of the original drug is contained in each dilution or trituration. A word here in regard to the preparation of these remedies will not come amiss. "The object is so to prepare each medicinal substance that the whole of its virtues shall be present in a suitable form for administration." The tinctures are prepared either by expressing the juice and mixing it with alcohol, or by maceration in the same fluid: in each case the medicinal substance is contained in the tincture in the proportion of one to two; this is called the "mother tincture."

To prepare the "dilutions" or "potencies," two parts of the mother tincture are added to eight parts of alcohol, which makes the first decimal dilution; to make the second, one part of the first is added to nine parts of alcohol; the third is made by taking one part of the second, and so on; these dilutions are prepared on the "decimal scale."

A great many of the remedies are prepared on the "centesimal scale"; one part of the tincture being added to ninety-nine parts of alcohol, which makes the first centesimal dilution. The second is made from the first in the same manner. The dilutions of the mineral substances when soluble are made with water, as also are the mineral acids.

The metals and their insoluble salts are prepared by the process of trituration. One part of the substance used is rubbed up with either nine or ninety-nine parts of sugar of milk, according as they are prepared on the decimal or centesimal scale; this makes the first trituration. The second is prepared from the first in the same manner. The potencies ordinarily used range from the first to the third. In our specialty I have seldom given higher than the twelfth, and generally use the first, second or third.

In this paper when a potency is mentioned, it will be understood that the centesimal scale is intended. When the decimal is meant it will be so stated. The process of trituration has been of great benefit, as by it many substances have been added to the materia

medica, which, before this process was discovered, were unavailable on account of their insolubility.

Gold, Platina, Silver, Tin, and other metals, all valuable remedies, are soluble in the stomach when triturated.

The different salts of calcium are triturated and are specially valuable for treating children, as they are tasteless, and as much benefit can be derived from them as by using the different solutions and syrups.

In cases of different dentition the use of these salts will give good results, and when the child is young it can be mixed with its food without any danger of injury to the stomach. In regard to the repetition of the dose, there seems to be a great diversity of opinion. Some practitioners give it at long and others at short intervals. The general rule is, for acute diseases, to repeat the dose from every fifteen minutes to two hours, and in chronic diseases from every two to six hours. I have found that every two hours is frequent enough except in acute cases of neuralgia or periostitis, when the dose should be repeated every fifteen or thirty minutes, until a change for the better has taken place. The size of the dose is, for triturations, as much as can be taken on the point of a pen-knife, dry on the tongue. If desirable, place in half a glass of water as much of the powder as can be placed on a ten-cent piece; of this one teaspoonful should be taken at a time. When the tinctures are used, put five or ten drops in the same quantity of water, one teaspoonful as a dose.

There are several remedies spoken of in this article which are peculiar to the Homœopathic Pharmacopœia; one of these is the combination of sulphur and calcium, called *Hepar sulphuris calcareum*. This is prepared by mixing equal portions of powdered oyster shells and pure flowers of sulphur. The mixture is placed in a sealed crucible and kept at a white heat for ten minutes. The resulting salt is known in chemistry as Sulphide of calcium. The potencies are made from this by trituration. There is no space here to describe at length all the instances where it is indicated. I will only say that it seems to have control over the suppurative process, promoting it when desirable, and checking it when excessive.

Mezereum is the spurge-olive; from this the tincture is made by expressing the juice. It has a long-standing reputation as a remedy for periosteal affections.

I have found it very useful as a remedy for periostitis of the jaws; it is also a remedy for rheumatic periostitis, one of the most troublesome diseases that come into our hands for treatment. The last of these remedies that calls for particular notice is the *Tarantula cubensis*. This is the poison of the Cuban spider. The tincture is prepared by placing a spider in a small bottle of alcohol, when it immediately throws out its poison; from this the dilutions are made. This remedy acts somewhat like *Hepar sulph.* in healing abscesses. I generally give it in alternation with either *Calcarea phos.* or *Silicea*; the sixth decimal dilution is the best.

The chemical names of the remainder of the remedies will sufficiently indicate their composition. Some may say that the average dentist does not possess the requisite knowledge to administer remedies internally, but they must remember that dentistry is becoming more and more each day a specialty of medicine, and those who do not want to be left in the rear should go to work and read up, and while studying principles and practice let them read a few works on Homœopathic Practice, and they will find there many things that will be of assistance to them.

Take, for instance, one of the most common diseases that the dentist is called upon to treat, *i. e.* facial neuralgia.

The patient complains of severe darting pains in one or all of the branches of the fifth nerve; severe toothache on taking anything hot or cold into the mouth. On examining the teeth nothing can be found out of order, no pulps exposed, no signs of periostitis, everything looking healthy; very frequently the pain is located in some tooth that is perfectly sound. Again, the complaint is that every tooth on one side of the jaw is aching; one day it may be in the upper, and the next the lower jaw.

Upon inquiry it will be found that the patient has taken cold in the side of the face by sitting in a draft, or something of the kind. In such cases *Aconite* is the best remedy. The third centesimal

dilution is usually strong enough, though I have cured some cases in a few hours by means of the thirtieth.

When there is marked local hyperæmia, with the face flushing on the affected side at each paroxysm and the eyes are inflamed, Belladonna is to be given. Sometimes alternated with Aconite will have good effect.

When the pain is deep seated, and especially when it is located in the antrum, Arsenicum is to be used. The higher potencies are the best; I generally give the sixth. Another form: When the pain is in the lower jaw and extends down along the side of the neck and there is an absence of fever, Mezereum first will give good results. It would be impossible here to describe all the varieties of this disease and their treatment. There is only room to give some of the remedies: Chamomilla, Phosphorus, Coffea, Kali bromidum, Mercurius, Pulsatilla, and Ignatia. Pregnant women are very frequently sufferers from this disease, which cannot be cured by the ordinary neuralgic remedies. In such cases Sepia, Magnesia, or Calcarea carbonica are required. In scrofulous diseases these attenuations show forth at their best; in abscesses of the jaws, where there is a large quantity of thick, flaky pus secreted with a decided odor, the following method of treatment will usually be successful: Syringe out the pus cavity with a dilute solution of Carbolic acid, and right here your local treatment may stop, for it is rarely necessary to inject more than once. Give the 6th decimal of *Tarantula cubensis* and the 1st decimal of *Calcarea phosphoricum*, alternately every hour. In twenty-four hours a decided change will have taken place; the swelling will have decreased, there will be a less quantity of pus secreted, and it will be more healthy in appearance. Apply to the fistula a small piece of lint covered with vasaline, and over this place a bandage to keep it in place. Have the patient change it twice a day. This will serve a twofold purpose, not only keeping the surrounding parts clean and healthy, but a portion of the vasaline enters the fistula, and acts the same as a cotton tent to keep it open.

As a tonic, give Syrupus ferri iodidi, fifteen drops after each meal; also direct cold baths with hand-rubbing afterward. The abscess commences to heal from the inside, and its decrease in size

can be measured by means of a probe. In from ten days to two weeks the fistula will have closed, and all that remains will be a small lump, which is slightly painful to the touch. Kali hydriodicum, or Mercurius protiodide will soon cause this to disappear. The above plan I have pursued in a number of cases with decided success. Variations from this method will be necessary, sometimes when complications occur. To hasten the pointing of an abscess, give Hepar sulphuris, or Silicea 3d. In simple abscesses these will often effect a cure without the use of any other remedy. Suppuration of the antrum is commonly met with in scrofulous children. A slight blow on the cheek, or any injury to the teeth will give rise to this disease; its diagnosis is simple; the swelling under the eye varies in size from that of a pigeon's to a hen's egg; yields slightly to pressure and is very sore to the touch. Here, again, are Tarantula and Calcarea phos., the remedies called for. I have treated recently four cases with these remedies, and in all of them the swelling disappeared in from one to three days. Enlargement of the lymphatic and of the submaxillary and sublingual glands are frequently met with in scrofulous subjects. If the case is seen before suppuration has commenced, a cure will result by the use of Sulphur or Calcarea carb. If, on the contrary, suppuration has taken place, they should be treated the same as a simple abscess, by means of Silicea or Hepar sulph. I have devoted some space to the treatment of scrofulous diseases, as I wish to urge the effectiveness of this course of treatment. While writing about children I would like to direct attention to a curious fact in relation to Kreosote. Our use of it has always been locally, to relieve a toothache caused by caries. It may surprise some to know that it has its good effects when given internally. M. Leste recommends it very highly as a specific remedy in difficult dentition. When there is general irritation and the child is fretful and sleepless, it will act very well. He also states that it is a good remedy for toothache when caused by caries, but that I cannot substantiate. I think that it would be successful where there is a difficult eruption of the wisdom tooth. The sixth, twelfth and thirtieth dilutions are to be used. In cases of periostitis I have given the mercurials with

good results; Merc. sol., Merc. protiod., and in some cases Merc. corrosivus in the lower potencies from the first to the third, are to be given; Mezereum, Kali bichromicum and Kali bromidum are also effective. When there is much fever Aconite is to be given in alternation with Mezereum. If necrosis has taken place the treatment should be different. Extract the offending teeth and make a number of openings to allow the pus to escape readily. Give Hepar sulph. 1st, or Silicea; if they are slow in acting give Calcareo phos. in alternation with Tarantula. This will effectually check the secretion of pus and prevent the system from being weakened. Tonics are to be given when required. After this, all that can be done is to wait until the sequestrum becomes detached. To assist this process Symphytum has been highly spoken of. In phosphor-necrosis the remedies should be Phosphoricum and Acidum phosphoricum. Caries of the maxilla is the only disease that I have not attempted to cure entirely without the aid of the knife; the remedies for this are Aurum muriaticum, Silicea, Fluoric acid, and in some instances Phosphorus. A large number of cures have been reported by the use of these remedies without surgical interference.

In injuries to the jaws, caused by blows, etc., Arnica is to be given at short intervals. I once had a case of a badly united fracture of the inferior maxilla, where the tongue remained partially paralyzed so that the patient could not speak distinctly. I gave the tincture of Aconite and Belladonna, alternate every hour, and in two days the tongue became perfectly natural. It is impossible for me in the limits of such a paper as this to discuss all the diseases that come into the hands of the dentist, and their appropriate treatment. If by here giving the results of my own experience I shall be able to call the attention of others to the assistance that these remedies will render to the intelligent practitioner, the object of this paper will be achieved.

DENTAL EDUCATION.

The July number of the INDEPENDENT PRACTITIONER contained an article entitled "Dental Education," which purported to be a

“reply” from the faculty of the Baltimore College of Dental Surgery to an article, on the same subject, from Dr. B. Merrill Hopkinson, which appeared in the June number of the *PRACTITIONER*, charging the faculty of the Baltimore College with granting diplomas in a very irregular manner, to persons who had never attended the lectures, demonstrations, etc., of their school. This “reply” to Dr. Hopkinson’s charges, all of which we believe to be strictly correct, far from exonerating the faculty of the Baltimore College, consisted wholly in an unprovoked attack upon the Dental Department of the University of Maryland, which had nothing whatever to do with Dr. Hopkinson’s article.

In the first place, Dr. Hopkinson, before he wrote the article in question, and subsequent to the publication of the catalogue, had resigned his position of Demonstrator in the Dental Department of the University of Maryland, and is not now connected with that institution. As a graduate of the Baltimore College of Dental Surgery, and being well acquainted with the manner in which his *alma mater* has been conducted of late years, Dr. Hopkinson deemed it to be his duty to place before the dental profession what he considered to be an abuse of power and an injury to the alumni of the old school; and he alone is responsible for the article containing the charges of irregularity, in the enumeration of which the half at least has remained untold. Under the impression, apparently, that abuse of another institution would shield them from condemnation, and also on account of their inability to furnish any excuse for what Dr. Hopkinson charges them with, the faculty of the Baltimore College have attempted to show that the Dean of the Dental Department of the University of Maryland was willing to do as their Dean did in regard to one West Virginia and the three New Jersey gentlemen, who received the Baltimore College diploma last March without attendance upon the lectures, demonstrations, etc. It is scarcely necessary to state that if it had been as easy to obtain the dental diploma of the University of Maryland as it was to obtain that of the Baltimore College of Dental Surgery, the gentlemen in question would to-day be ranked among the alumni of the former institution, as every one of them

openly expressed his preference for the diploma of the University over that of the Baltimore College. So many inaccuracies occur in the "reply" of the faculty of the Baltimore College to Dr. Hopkinson's charges, and so abusive is it of the University, that I deem a simple statement of the facts in the case to be necessary. Dr. James G. Palmer, of New Brunswick, N. J., late President of the New Jersey State Dental Society, before the opening of the session of 1883-84 of the Dental Department of the University of Maryland, applied to me as its Dean to know upon what terms three gentlemen of his State Society, who had been practicing dentistry for eighteen or twenty years, and whose reputation was well established, could obtain the dental diploma of our University. Two of these gentlemen were C. A. Meeker, of Newark, N. J., and F. C. Barlow, of Jersey City, N. J. Some correspondence ensued between Dr. Palmer and myself, but no definite arrangement had been made, when the New Jersey gentlemen presented themselves early in the session and attended some of the lectures and demonstrations, having matriculated and received their tickets. At this interview the question arose as to the time these gentlemen could pass at the University, and it was finally arranged that they should in the course of two sessions meet the requirements of the University for graduation; their length of practice entitling them to present themselves for graduation at the end of one session. Such an arrangement was made on account of their many years of practice, their ability as dental practitioners, and their home business. I do not remember ever to have met the New Jersey gentlemen on a Sunday in accordance with an agreement to do so made on a Saturday, as is alleged by the faculty of the Baltimore College in their "reply." On the contrary, as I recollect the matter, the New Jersey gentlemen arrived in Baltimore on one occasion, on Sunday, and the same afternoon, without my being aware of their presence in our city, called at my office. I am not in the habit of doing business on Sunday, for, to the best of my recollection, in the course of an active practice now extending over twenty-five years, I have never even filled a tooth upon a Sunday. During an interview with the New Jersey gentlemen, at which it is alleged by the

faculty of the Baltimore College that I alluded to Dr. Tiffany's determination to vote against them, it is only necessary for me to state that, although Prof. Tiffany is the Clinical Professor of Oral Surgery in the University of Maryland, he has no vote on the graduation of dental students; hence no such statement could have been made by me.

As regards the case of C. S. W. Baldwin, of Matawan, N.J., who also received a diploma last March from the Baltimore College on the same terms as did Messrs. Meeker and Barlow, when Mr. Baldwin applied to me by letter, the same arrangement was proposed to him as to the others, under the impression, conveyed by his letter to me, that he had been practicing dentistry for many years, and enjoyed the same reputation and standing at home and in his State Society as Meeker and Barlow. Afterwards, and prior to Mr. Baldwin's visit to Baltimore, on the occasion of an interview with Messrs. Meeker and Barlow, these gentlemen informed me that they objected to graduate with C. S. W. Baldwin, so that I determined to hold his case in abeyance until further investigation could be made. But as Mr. Baldwin never had a personal interview with me, no further action on my part was taken. The only reason why these New Jersey gentlemen applied to the Dean of the Baltimore College of Dental Surgery for diplomas, was that by doing so they could save the time they would be required to pass at the University, and graduate on easier terms. So far from promising light examinations and guaranteeing diplomas to two of these gentlemen, as the "reply" charges, I positively deny such a statement, for I plainly informed them, when they repeatedly urged me to arrange for easy examinations, that they must meet all the requirements exacted from the other students. During my connection with the Baltimore College, extending over a period of twenty-five years, and with the University of Maryland, I never, in any case, guaranteed a diploma, and never shall do so. I have also opposed the granting of diplomas to those who did not meet the requirements of the school, and when diplomas were awarded in the old Baltimore College to others than the members of the class in attendance at the time, it

was to those who had many years before attended one session and had been in active practice ever afterwards.

But few exceptions to the above can be referred to, although such cases were not confined to the past fifteen years, as is alleged in the "reply," but extended over a period commencing with the organization of the school. Until the present Dean entered the faculty of the Baltimore College, only men of acknowledged ability were so favored, and a majority of the faculty decided the matter.

At the Sunday interview with Messrs. Meeker and Barlow, and in the presence of Dr. James G. Palmer, of New Brunswick, N. J., who will confirm this statement, the two former gentlemen gave me to understand that, through Dr. Fred. A. Levey, of Orange, N. J., a graduate of the late Maryland College, and an intimate friend of the present Dean of the Baltimore College, they, Meeker and Barlow, had been offered graduation in the Baltimore College of Dental Surgery on the easiest terms imaginable—what I, at the time, understood to be *no attendance whatever, and the payment of a mere fee*: in other words, anything, if these gentlemen would leave the University of Maryland, and go to the Baltimore College. I freely admit that, in consideration of the represented ability of Messrs. Meeker and Barlow, and at the earnest request of Dr. Jas. G. Palmer, whose kindness towards them was so poorly appreciated, I did offer these gentlemen some reduction in the time of attendance, but my letter to C. S. W. Baldwin, as published in the "reply," shows that these New Jersey gentlemen were required to attend portions of two sessions, making about three months instead of the four months second-course students generally attend the majority of the dental schools—a very different arrangement from that they made with the Baltimore College, *where their entire attendance did not extend over one or two days*, and that, too, at a time when the lectures and demonstrations of the session had closed. Supposing that I did promise easy examinations (which I have no right or power to do), as is alleged in the "reply," and which I have already positively denied, I leave it to the readers of this article to determine how honorable would be the conduct of men who, after

earnestly soliciting such a favor, would use it to injure the one granting it.

As regards the case of T. H. Schaeffer, another graduate of the Baltimore College who received a diploma last March on the same terms as the New Jersey gentlemen, a brief statement will suffice: During the latter part of February, 1884, Mr. Schaeffer called at my office, and at once informed me that he had been sent to me by Dr. S. H. Williams, of Charlestown, W. Va., whose practice he was about purchasing, and that he wished to obtain a diploma from the Dental Department of the University of Maryland, which, according to what he said Dr. Williams had told him was worth a great deal more than that of the Baltimore College. I informed Mr. Schaeffer that he could not obtain a diploma during the present session, as it would be necessary for him to attend at least one entire session. Mr. Schaeffer had given me to understand that he had formerly been in practice for some ten years, but for a number of years, eight I think, had been engaged in the manufacture of agricultural implements, and that he must obtain a diploma in order to comply with the dental law of West Virginia. Mr. Schaeffer then asked me if I thought he could obtain a diploma at once from the Baltimore College. I replied that he must ascertain that from the Dean of that school.

Mr. Schaeffer did not, as alleged by the faculty of the Baltimore College in their "reply," *by mistake call upon Dr. Gorgas*, for he stated, during this interview, that some one had told him since he arrived in the city, that I was not connected with any dental college, and that he had had some trouble to find out who was the Dean of the Dental Department of the University of Maryland. Shortly after this interview with me, Mr. Schaeffer stated in one of the dental depots of Baltimore, that Dr. Gorgas had refused him a diploma, but he was going to obtain one from the Baltimore College, for the Dean of that school had told him he could return home and come again to the college in two weeks' time, in order to be examined. We leave the profession to judge of the nature of an examination such a man as this could pass, who had not been in practice for, at least, eight years, and had never devoted any time to the study of dentistry.

As regards the cases of J. F. Dowsley and F. A. Twitchell, these gentlemen called upon me at the University and stated that they had been attending the Baltimore College for some days, but, as I understood, had not yet matriculated. They also stated that they were not satisfied with the Baltimore College, and thought that they would be better pleased with the University, as they had attended some of its lectures, etc. I informed them that they were at liberty to attend, for a short time, our lectures and demonstrations, so that they could judge for themselves, as they had each passed one course at the Boston Dental College. One of these gentlemen, if not both, had a beneficiary scholarship to the Baltimore College. Several days after this they called at my office and matriculated, paying for their matriculation tickets (which they still hold), and when about leaving, desired to know if their examinations upon certain studies, passed at the Boston Dental College as juniors, would be received in the University. I informed them that we could not do so, and several days afterwards, during which time I did not again see them, they informed me by letter that they had made a more satisfactory arrangement with the Dean of the Baltimore College.

The above is a true statement of the cases referred to by Dr. Hopkinson in his article, and from the fact that the course pursued by the present government of what was formerly the *old* Baltimore College, has become public, the only defense offered by that faculty is a "vicious attack," altogether unprovoked, upon a rival institution. Unfortunately for the Baltimore College, since it passed under its present government, the same course (and one openly advocated by its present dean) has been pursued as in the late Maryland College. I have learned from good authority that some of the last graduating class of the Baltimore College, who had complied with its requirements as they appeared in the catalogue, were so greatly dissatisfied, that they complained of the faculty having graduated a number of men without attendance.

Finally: it is perfectly absurd to allege that any other motive except that of easy graduation, both as regards time and examina-

tions, influenced all of the gentlemen whose cases are referred to by Dr. Hopkinson, in the choice of their *alma mater*, and the author of the "reply" must have had a vivid imagination when he inferred as the facts of these cases could only be known to the Dean of the Dental Department of the University of Maryland, hence, the latter had some part in bringing the charges. For his enlightenment it is only necessary to state that the facts of these cases were known throughout the entire country long before Dr. Hopkinson's article appeared.

The course pursued by the Dental Department of the University of Maryland, from its organization to the present time, has been open and above reproach; and every student who has obtained its diploma has strictly conformed to all its requirements as published in its annual catalogues, and any statement to the contrary can be easily disproved. Since the action of the State Boards at Niagara Falls, the University of Maryland has conformed to all the suggestions of that Board, and will endeavor to do so in the future.

FERDINAND J. S. GORGAS, M. D., D. D. S.,
Dean of Dental Department University of Maryland.

Personally appeared before me on this, the seventh day of July, 1884, Ferdinand J. S. Gorgas, M. D., D. D. S., and made oath that he truly and sincerely believes the above statement, to which his name is attached, to be strictly true.

Sworn to before me, this 7th day }
of July, 1884. }

JOHN L. BAKER, J. P.

REPLY BY DR. HOPKINSON.

The reply to my article on "Dental Education," I should have termed it "Lack of Dental Education," published in the July number of the INDEPENDENT PRACTITIONER, calls for a rejoinder, and I will do myself the honor to answer the personal attacks of my illustrious confreres, nothing else being required. I will say a few words, which will, I think, successfully clear away the fog from the minds of my distinguished brothers, and at the same time place myself in a better light before the profession of which I have the honor to be a member, having been placed in an unwarrantably false

light by the faculty of the B. C. D. S. There are many things in the able reply to my modest paper, which I confess fill me with just choler, but as I believe I am generally considered to be a gentleman, suffering much, especially for the benefit of the brethren, and of a modicum of goodness, I will smother the feelings of wrath that are swelling up, and in reply use sledge-hammer blows from the pen to wipe out the slurs of men who distrust my motives, given to the profession in simple and straightforward English.

I was truly surprised to read in the reply, after my most honest statement of my regret for feeling myself obliged to write of the irregularities known to me, regarding it in the light of pure professional duty, that I was rated as only the mouthpiece by which the faculty of the University of Maryland spoke, and in opposition to the B. C. D. S. This is the first time in a somewhat varied experience in life, that my motives have been doubted when I have made a positive statement, leading persons naturally to judge me contrariwise, and this, together with the personal animus of the reply, shows a desire to evade the important charges by making personal attacks upon myself and others, and by trying to show that good and pure motives are not what they seem, but are cloaks to cover a feeling of rivalry and prejudice. Once again let me assure the professional world that my article was written without fear or favor of any man, or set of men, and I would have it distinctly understood by the "doubting Thomas" of the B. C. D. S., as well as by all members of my profession, that I wrote the article from a perfectly independent standpoint, and without the knowledge of any man, save my father.

I think the above statement ought to do away with the feeling that I was aided or abetted in the production of my paper upon "Dental Education" by any member or members of the dental department of the University of Maryland. Now, as regards my official connection with the University of Maryland, and this is a point I wish to emphasize particularly. The catalogue for the dental department for this year contains my name as Assistant Dem. of Operative Dentistry, a very humble but sometimes useful position. My name was placed there under a misapprehension and *entirely*

without my *knowledge* or *consent*. The day I received the catalogue from the Dean I sent him my unconditional resignation, which was of course immediately accepted. My resignation preceded the publication of my article, and indeed the writing of it by quite a lapse of time, therefore, I *could not* have been connected with the University of Maryland, even in the "inferior position" of which my brothers speak so sneeringly. I think this will wipe out the suggestions of men who prefer to use petty slurs in the defense of what they should know and feel to be wrong, instead of defending their cause, weak though it be, in a legitimate and upright manner. Alas for the supposed perspicacity of my illustrious opponents! All the charges I have made against the B. C. D. S. are admitted in toto, and by members of the erring faculty, *as they were made*, so it is not necessary to say more in connection with them. I did not intend in my article to imply that all of the irregularities of the B. C. D. S. were confined to *last year*; far from it, for in the class of '83, at least two other like cases appear, one of them being A. D. Barrett of Virginia, of which case Dr. J. W. Foreman of Norfolk, Va., knows, and writes me about; the other, George Horatio Jones, of England, who received his diploma, so says "Dame Rumor," by proxy, and of course *in absentia*. How is that, did you ask? I pray some one acquainted with the facts, and there must be many, tell us all about it. Dr. Foreman also says that in the year we graduated, viz. : '79-80, two gentlemen received their sheepskins without attendance. It may be so; will he be kind enough to give us full particulars, and let us go to the bottom of this thing and find out the whole truth. The famous "Visitors' Letter," I confess I overlooked, and in it may be found a small hole through which to crawl, and by the amount of crawling done, I should think by this time the hole would admit the passage of a veritable "jumbo" of unlawful evasion. The necessities of a state, when Tom, Dick, and Harry can call themselves "Doctor," and open an office for the purpose of rendering professional services, demand such a "board" to investigate the ability of such pretenders; but the Faculty of a well-regulated and incorporated dental school must be a singular combination of intellects, if they require a committee of a so-called

"visiting board," to advise them what they had better do with students, whom they, the Faculty, have had under their sole charge for a period of months, and know before the days of the dread and awful "final," full well the capabilities of each student in the graduating class. They must indeed be modest men in a high degree, or else they are too anxious to have a means whereby they can evade the letter of the law as contained in their requirements for graduation. The visitors, better call them "helps to graduation," were indeed a boon in the cases of which I have written. That same "board of visitors," as well as several members of the present faculty of the B. C. D. S., assisted in the decay, and were present at the death of the great and famous "Maryland Dental College," which passed away at the tender age of six years! R. I. P. !!

Verily, verily, I say unto the governing faculty of the B. C. D. S., I am the same B. M. Hopkinson who signed the paper in question, and let me add *for cause*, and I have never been able to see any reason why I should have done otherwise, and my sole regret has been ever since that the faculty did not appear to have as good judgment as the petitioning students.

Verily, verily, I say again, *anonymous affidavits*, like anonymous letters, are "not brave things" for gentlemen of age, wisdom and erudition, and I would suggest leaving them to the young, foolish and untutored. As for the suggestion on page 366 of the reply, concerning the fees which "slipped through the hands" of the Professors of the University of Maryland, I do not esteem it worthy of notice, and it must have been the coinage of the brain of some one looking only to the personal accumulation of dollars and cents.

The Dean of the dental department as well as Dr. Harris will probably be heard from, and I am sure in a satisfactory and conclusive way. Had not my motive been misjudged, my intentions corrupted, and so personal an attack made upon me and others, I should not have been obliged to write such a reply as this. I sincerely regret the necessity, but never stand back when I should go forward.

B. MERRILL HOPKINSON, D. D. S.,

BALTIMORE, July 7th, 1884.

No. 58 Saratoga Street.

NOTE.—Owing to an error in the "making up" of the first form, the replies of Drs. Gorgas and Hopkinson were made to change places. The latter was first received, and should have been placed first.—EDITOR.

REPLY BY PROF. HARRIS.

In the July number of the INDEPENDENT PRACTITIONER appears an article on "Dental Education," signed by the faculty of the "Baltimore College of Dental Surgery," in reply to one upon the same subject written by Dr. B. M. Hopkinson, which appeared in the June number of the same journal. This article contains certain charges against me, the entire falsity of which I will endeavor to make fully apparent. To those who are acquainted with myself and certain members of the faculty of the Baltimore College, I feel that any reply from me is unnecessary, and while to those who are acquainted with either, the venom which characterizes the article must be sufficiently apparent; yet as I have nothing to conceal as to my conduct in the matter, I have concluded to answer briefly the salient points of the article. It is stated that Dr. C. W. S. Baldwin on February 19, 1884, called upon Dr. Gorgas, the Dean of the Dental Department of the University of Maryland, and not finding him at home was sent to me, and at our interview was so disgusted with my disparagement of others that he applied the next morning to the Dean of the "old Baltimore College" to matriculate. The true statement of what passed during the conversation between Dr. Baldwin and myself is as follows: The subject of graduation was soon introduced, and Dr. Baldwin seemed most anxious to graduate at the close of the current session. I informed him that this was utterly impossible, that our lectures, etc., were nearly over, and that to allow him to matriculate and come up for graduation at that late day in the session would be a violation of the rules of our department, and should he graduate, simply amount to selling him a diploma. He gave certain reasons why he could not present himself sooner, such as sickness, business, etc., all of which I told him we could not consider. I further said to him that if he simply wished to buy a diploma I felt satisfied that he could get one for a small sum of money. He then made inquiries of me respecting the Baltimore College of Dental Surgery, asking me if it did not stand well, etc.; to this I replied, that in the estimation of some, perhaps it did, but in that of many others it did not. I leave it to any unprejudiced mind to determine if the real reason why Dr. Baldwin

made no further attempts to see Dr. Gorgas, did not arise from the fact that I had informed him that it would be impossible for him to graduate at that session with us, and that, to obtain a diploma at the time he desired, he must seek it elsewhere. This was merely an affirmation of the statements of Dr. Gorgas in his letters to Dr. Baldwin, which are contained in the article in the July number.

The next charge, in reference to Drs. F. C. Barlow and C. A. Meeker, is put rather in the form of an innuendo than as a definite assertion. "They were then introduced to Dr. J. H. Harris, who under the circumstances broached the idea of their receiving an 'honorary degree' at the end of the session." What does this sentence mean? If any specific charge is intended, why is it not plainly and clearly stated? Is it the object of the writers to "darken wisdom with words," or do they wish to insinuate a charge and then leave a loophole of escape for themselves upon the proof of its falsity? If the charge is that I promised either of the gentlemen an honorary degree, I then most unhesitatingly pronounce it false. What I did say to Messrs. Meeker and Barlow was, that I would much prefer to see them receive an "honorary degree" rather than the regular degree at that late day in the session, as in the former case it would not be asserted that money was the moving power; but I also informed them that this was impossible with us, as we had determined at the formation of our department not to confer honorary degrees.

The last charge, which takes the shape of an affidavit, is not signed, nor is the city, county, or State where it was taken given, nor is the character of the judicial officer before whom this affidavit was taken disclosed, unless we are to infer from the letters "J. P." that he is a Justice of the Peace—located at some point unknown. Now I ask of my professional brethren if this is brave or manly to thus stab in the dark? Why is the name of the affiant withheld? Is it for a more suitable time? If so I am at a loss to conceive of a time more suitable than when the affidavit itself is published to the world, and while I most positively pronounce the statements contained therein to be a wilfully false distortion of any conversation which the affiant may have had with me, yet I do not pro-

pose to belittle myself by making any further reply until such time as the name of the person making the affidavit is disclosed, when I will be pleased to answer it fully and explicitly. In conclusion, I would add that as a piece of special pleading and in dodging the real issues, and raising those which are entirely foreign to the original charges of Dr. Hopkinson, the article would do credit to gentlemen of the legal fraternity. Yet one fact remains undisputed, that the gentlemen named could not have graduated at the Dental Department of the University of Maryland at its last session, and *did* graduate at the Baltimore College of Dental Surgery. One more word, when I will leave the subject for the present. I *never did guarantee* a diploma to *any man*, and am fully aware that I do not now, and never did constitute a whole faculty. Had such a guarantee been given to an applicant desiring to graduate upon so limited attendance upon lectures, his name would surely not appear with the graduates of the Baltimore Dental College. I am always fully satisfied when I feel that I have performed my individual duties, and the idea of my attempting to assume the responsibility of an entire faculty is simply nonsense.

JAS. H. HARRIS,

271 N. Eutaw St.

BALTIMORE, MD., July 11, 1884.

TO THE DEANS OF THE DENTAL COLLEGES IN THE UNITED
STATES OF NORTH AMERICA.

Deutsche Monatsschrift fuer Zahnheilkunde. Verlag von Arthur Felix, Leipzig.

Most Esteemed Gentlemen:

I learn that representatives of all the dental colleges are to meet in New York on August 4th, for the purpose of discussing uniform rules of graduation.

The warm interest which I have always borne toward dental colleges causes me, most esteemed gentlemen, to address to you these lines, and to call your attention to abuses which I most urgently beg you to remedy. The above-mentioned meeting in New York appears to be especially appropriate to discuss the sub-

ject of my certainly not unfounded solicitation, and to bring about the *very necessary rapid redress*.

There is before me an article published in the INDEPENDENT PRACTITIONER, 1884, page 241, from the pen of *J. L. Tierney, D. D. S.*, an American. In this article these same abuses are discussed with the greatest objectiveness. Complaint is made in it that the dental colleges graduate *foreigners* (especially Germans) who do not possess even the slightest scientific preparation, and who attend college only from four to five months, in most cases without sufficient knowledge of the English language. The consequence of this is said to be, that men who in Germany but a short time previously had occupied the lowest positions as "barbers, corn operators, assistant dental mechanics," etc., return as D. D. S. after so short a sojourn in the United States.

I am sorry to be obliged to corroborate these statements of your countryman. Please permit me to mention only one of the numerous cases known to me, one of recent occurrence.

In September of last year a *barber* of this city, who had also been employed but a short time previously as independent dental operator, went to the United States of North America and entered a dental college much frequented by Germans. He attended English lectures from November until February, and —— graduated as D. D. S. But in spite of this the man can scarcely read a few words in English, to say nothing of being able to follow an English lecture.

A large number of such men are already practicing in the German Empire as "American Doctors of Dental Surgery," graduated by *legally incorporated* colleges. At a *German* University these men would never have been admitted to a study—not to speak of an official dental examination—because it is simply unreasonable that anybody with so defective an education could successfully follow a study. How is it possible that *the very same men* who can scarcely master their mother-tongue are able to pass examination *with success* as D. D. S. at the American dental colleges, after having attended the *English* lectures from four to five months? How is it possible that these *foreigners* can acquire in so short a time that

knowledge and fitness which *Americans by birth* can only attain after a two years' course? I have indeed to agree with my colleague, *Dr. Tierney*, when he says in the above mentioned article, that these "five-months' doctors," though not in form, yet in principle, are to be classed with those who obtained their diplomas from a *Buchanan* or from the *Wisconsin* college.

You will not be surprised, most esteemed gentlemen, that the dentists graduated in Germany do not consider as "colleagues" those *uneducated* persons who graduated in your country, and of whom I have just spoken. But what opinion of the American dental colleges must be entertained by the German public, if these same persons who five months ago were *barbers*, etc., appear now as "doctors of dental surgery?" It is only too evident that, unfortunately, under such conditions the innocent ones—and there are here in Europe certainly a great many excellent men among the American dentists—must suffer with the culprits.

Throughout the world, and not the least in my own country, have been gratefully acknowledged the high services for which dental art is indebted to the United States of North America. During a long time your dental colleges were a high school for dentists, and it could be justly said that the dentist who, in addition to his home university, had successfully attended an American college, had done all that possibly could be done for his dental education.

Formerly, therefore, many *German dentists*, after having acquired as thorough a knowledge as possible at home, would leave for the United States to perfect their studies at one of the dental colleges. To-day things are different. To-day it is mostly a number of *totally illiterate* men who, in the most favorable cases occupied themselves for some time as dental mechanics, flock to the American dental colleges, not with the intention to get a thorough training, but to obtain as quickly as possible the diploma as D. D. S. Through this abuse the formerly good reputation of your dental colleges has already suffered heavily, and will suffer even more in future if it is not speedily checked.

The *educated German dentists*, who might desire to enrich their experience at one of your dental colleges, would refrain from so

doing by noticing with whom they would be obliged to associate at the college, and what incapable men they would be obliged to accept afterward as "colleagues."

I believe, most esteemed gentlemen and colleagues, that I have given you in a few traces a true picture of the circumstances which have already damaged the formerly good reputation of your dental colleges, and which threatens to destroy it in the future. As you, most esteemed gentlemen, are presumably aware of the interest that I have always taken in the American dental colleges, I take the liberty to beg you most humbly to direct your attention to the abuses depicted by *Dr. Tierney* and by myself, and to devise measures of speedy relief. Be careful, most esteemed gentlemen, that only actually efficient men will graduate in future from your dental colleges, and that to all those foreigners who cannot pass examination at home, or who, at least, have not attended there some university for a sufficient time, the degree of D. D. S. will only be conferred in case, after *several years* of study, they give an efficient proof of their fitness by a *thorough* examination.

It is only by strict adherence to some such rules that your dental colleges will regain their former standing with us in Germany.

With highest esteem,

DR. ADOLF PETERMANN,
Frankfort-on-the-Main, Germany.

THE CARE AND TREATMENT OF EXPOSED PULPS.

BY B. F. LUCKEY, D. D. S.

EXTRACT FROM A PAPER READ BEFORE THE CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

In attempting to preserve the pulp, the general health of the patient and the condition of the pulp must be taken into consideration. If the general systemic condition is good, or fairly good, and the exposure recent, the case may be treated and carried to completion at once; but if the patient is debilitated—anæmic—and the system run down, or if the pulp has been exposed for a long

time, more care will be necessary, and more caution required in its treatment.

There have been many ways and methods of treatment pursued and advised for the salvation of the pulp. A great variety of materials have been recommended for cappings, prominent among which are sheet lead, gold plate, card-board, cork, cup-shaped platina caps, gutta-percha, oxy-chloride and oxy-phosphate of zinc, collodion, shellac, etc. Old Dr. Hüllihen used a conical tube filled with morphine and creosote. A favorite method of treatment for a long time, and a very good one too, has been to cap the exposed portion with a thin mixture of oxide of zinc and creosote, and after absorbing the excess of creosote with a little spunk or bibulous paper, to partially fill the cavity with any of the oxy-phosphates or oxy-chlorides. It is the method I pursued for a number of years—but for some time past I have been treating exposed pulps in a way that has given me more complete satisfaction and a larger percentage of success than I have ever had by any other method.

In a case of a very recent or an accidental exposure, where there is little or no inflammation, after removing the decay from the cavity as thoroughly as the circumstances will admit, I wipe out the cavity gently with a pellet of bibulous paper saturated with a mixture of oil of cloves and creosote, which, coagulating the albumen of the organic tissue, forms at once a protecting coat for the exposed pulp, and obtunds the sensitiveness of the dentine; I then place over the point of exposure a small quantity of iodoform paste, and over that I place a layer of asbestos felt, allowing it to lap well over on the solid dentine. I then cover that with oxy-phosphate of zinc mixed to the consistency of thick cream, commencing at the edges and working carefully toward the center, avoiding as much as possible all pressure over the exposed point; after the oxy-phosphate has hardened sufficiently, it may be trimmed enough to allow of permanent filling over it with gold or amalgam.

The formula for the iodoform paste is :

R̄ Iodoform, ℥ss.

Balsam Peru., ℥i.

Tonka bean, (grated fine), q. s. M.

I find that the paste acts like a charm in reducing the tendency to inflammatory action to the minimum, and in soothing whatever irritation may be present ; the asbestos felt is much better for capping than the gutta-percha ordinarily used, in that it is, I believe, a more complete non-conductor of thermal changes ; it is more tractable under the instrument, easier of adaptation, and does not swell and thereby cause pressure on the pulp, as we know that gutta-percha sometimes does.

All this can be done and the operation completed in one sitting, with the assurance of success that I have never had with any other treatment. In cases of long exposure, with considerable inflammation, by a slight incision I first cause a free flow of blood to deplete the pulp and relieve the tension, and after the bleeding has ceased proceed as before, with this exception, that instead of oxy-phosphate I use a temporary stopping of gutta-percha and wax, so that in case of trouble it can be easily removed, and further treatment resumed as the case may indicate.

One of the severest tests I have ever given this treatment was in a superior left first molar, in the mouth of a rather delicate young woman. She had been suffering a great deal with the tooth, and on excavating I found both of the anterior horns of the pulp badly exposed, either one of the openings being large enough to admit the head of a large pin—in fact, I could see it pulsate. I treated it in the manner I have related, covering the asbestos with gutta-percha and wax. The pain ceased before she left the office, and after a trial of about two months, I removed the gutta-percha and substituted oxy-phosphate, finishing with amalgam, the tooth being alive and apparently doing well ; that was about four months ago. I saw her recently, and she declared that she had not had a twinge of pain since the first treatment of the tooth.

I have also succeeded in amputating a portion of the pulp ; sometimes as much as half of it, and with this same treatment saved the remainder ; at least, I have good reason to presume they were saved, because they have given no further trouble.

In preparing cavities for filling, if there is much tenderness or a ready response to thermal changes, I always place in the bottom of

the cavity a layer of asbestos felt as a precautionary measure to protect the pulp, and thereby save my patient much after pain and suffering, and myself much extra work.

In case a pulp becomes thoroughly inflamed I do not believe it is policy to attempt to save it. Death is almost inevitable, for the vessels become so engorged with blood, especially the afferent vessels, that strangulation at the apical foramen is occasioned. When the symptoms indicate that the pulp is thoroughly inflamed, I believe the safest plan is to devitalize and remove it as soon as possible

PORCELAIN FACINGS FOR CARIOUS TEETH.

BY E. C. MOORE, D. D. S.

READ BEFORE THE DETROIT DENTAL SOCIETY.

I will describe to you an operation that, owing either to the lack of appreciation on the part of the patient or the want of patience in the operator, is not as common as in my opinion it should be. The patient had for some years worn an ordinary gold filling upon the labial surface of a central incisor, and during this time had never enjoyed a hearty laugh because of the ever present consciousness of that gold filling, which blazed like the head-light of a locomotive. You may readily appreciate how quickly she grasped at my proposition for her relief.

The defective filling was removed, and the cavity carefully cut into regular shape, the edges being made as straight as possible, and the floor left as nearly level as was practicable, while the edges were given a slight undercut with a sharp engine-bur revolved at great speed; this part of the operation was not particularly painful. The rubber-dam being still in position, a piece of sheet-wax was rolled between the fingers until it was no larger than a moderate sized needle, and this was molded into the undercut until the walls of the cavity were at right angles with the floor, and the undercut was entirely obliterated. An accurate impression was now taken with plaster-of-Paris, and the patient dismissed. From the impression a

model was made and thoroughly dried. A suitable piece of porcelain from a broken artificial tooth had previously been selected, and the color matched to the natural tooth. The side of this which was to lie in contact with the bottom of the cavity was now ground flat upon a coarse stone, and left about the requisite thickness, allowing for the final grinding and polishing. The porcelain piece was now heated and cemented to the end of a piece of orange wood, with a little shellac, the ground side outward for convenience in handling. It was now ground to fit the model as carefully as possible, and the exposed surface polished. The edges were ground to an angle a little less acute than those of the cavity, and were carefully polished with fine stone.

The patient presenting herself, the piece was now fastened in place with Weston's cement, and this is really the most delicate part of the whole operation. The space around the porcelain piece must be sufficient, and yet not too much. The piece must be evenly placed in the cavity, for if there be too much space upon one side there will not be enough on the other for the gold that is to hold it in place. It must be very quickly adjusted, for if this be not the case the cement begins to set and does not hold the piece firmly. The centering of the piece is best secured by inserting the edge of an instrument of a suitable thickness between the porcelain and the tooth at three or four different points.

When the cement was quite hard, a small cavity, equal to what is usually denominated a retaining point, was excavated in the cement and filled with gold. A similar point was then excavated and filled upon the opposite side, and then points midway between these. When enough of these points were excavated and filled, the piece was thus secured so that the remainder of the cement about the edges could be removed and the space filled with gold. The whole was then ground down and polished, when I had a central piece of porcelain surrounded with a delicate ring of gold, which was not unsightly.

I have endeavored to be exact in my description, and perhaps I have made myself tedious. The operation scarcely takes more time in its performance than in its description, but it requires some deli-

cacy of touch and care in its manipulation. There are two or three suggestions that I might make for your benefit. One is to warn you against making the space between the porcelain and the tooth so narrow as to leave insufficient space for enough of gold to securely fasten it. Another is to caution you against excavating the cavity too deeply, and a third is to advise you to postpone to another day the final insertion of the gold, thus allowing plenty of time for the cement to harden.

ABOUT PLASTIC STOPPINGS.

At a recent meeting of the New York Odontological Society, Dr. F. Y. Clark spoke of the combination of amalgam with oxy-phosphate of zinc as a filling material, and gave his method of preparing the mass.

The suggestion, emanating from so creditable a source, and the idea seeming so sensible, prompted the query as to whether such a combination might not serve a better purpose in many cases than either of these materials used separately?

The principal objection to alloy is its tendency to change shape, and so to leave the cavity-margins insecure, and zinc fillings too rapidly wear or wash away to be of permanent value. In the combination referred to these objections are much modified, and repeated experiments recently made give a favorable impression of its value.

The proportions stated were one part amalgam to two parts of the zinc. The former is prepared as for an ordinary filling, and when the cavity is ready for receiving the mass, should be well rubbed with a spatula into the soft paste of the zinc phosphate. It should not be mixed too stiff, especially where cavities are large and the walls frail. Sufficient allowance should also be made in finishing for veneering the exposed surface with a light coating of amalgam, which will readily adhere to the stopping.

When properly mixed it is exceedingly sticky, and clings tenaciously to whatever it touches. It is excellent for securing gold crowns, and where the inside of the caps are slightly "amalgamated" they will adhere firmly to the mass. Care, however, should be taken to avoid getting mercury on the outer surface of the gold.

Cases are presented in the course of a dentist's experience where this combination may be used to advantage, and Dr. Clark is entitled to thanks for his suggestion.

C. E. F.

Reports of Society Meetings.

ILLINOIS STATE DENTAL SOCIETY.

TWENTIETH ANNUAL MEETING.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

(Continued from page 380.)

Dr. G. V. Black—Said that he was already on record on the question of capping pulps, for he had expressed himself at former meetings. His earlier experiments in this pulp matter were not very successful. He would suggest that we differentiate, for cases vary in pathological condition. Thus, Dr. Crouse says if the pulp is normally sensitive he decides to cap. I will only add that if I see an abnormal condition, I decide not to risk capping. I would hesitate more in a child's case than in that of an adult. The pulp is less and less important with age, and more important with a child. One can cap the pulp in the mouth of a child with much better results than with an adult. Something has been said about the coagulum. I had rather not have that coagulum. If the parts are healthy, the removal may be brought about by absorption. The removal of the blood clot there by absorption is not different from the removal of a clot in the tissues anywhere.

As to the manner of capping, my practice has been to avoid irritation; hence I abandoned the use of chloride of zinc, and also the use of carbolic acid in large enough quantities to irritate. A greater per cent of success is attainable, I am persuaded, without forming a coagulum, by using about a thirty per cent solution of carbolic acid, then oxy-phosphate of zinc for the cap. I use a little

piece of paper and drop on this the preparation of oxy-phosphate; then carry it into the tooth and lay it there. The warmth distributes it evenly. I think that makes the nicest cap. Then I use wintergreen and oil of cinnamon.

Dr. Sitherwood—Said that success in capping depended to a great extent upon good instruments, and mechanical skill and dexterity in using them. He used Listerine as an antiseptic, in preference to carbolic acid. A leading physician of his acquaintance had used this remedy very successfully in irritations of the mucous membrane, and thus he was led to use it and to commend it.

Dr. Newkirk—The condition of the blood naturally affects the tooth, as it does other parts. What is the condition of the pulp? That is the question, and it is the principal consideration to govern in the operation. Skill and judgment are requisite, but if the conditions are bad they will not avail, and the pulp will die in any case. Put a little oil on the probe; it will go easier. With regard to instruments, I fear we use sharp points too much. I would have a curved edge; perhaps I should say spoon-shaped. No pulp should be capped if hemorrhage exists, otherwise we have a phase of embolism. It is important to delay capping until hemorrhage ceases; then nature may be trusted to take care of the matter.

Dr. L. C. Ingersoll—Spoke of the objection urged against the use of arsenious acid, and said the after results must necessarily depend upon the after treatment. I apply dialysed iron to remove the effect of the arsenious acid, in fact to antidote this poison. We have, in my judgment, no antiseptic equal to arsenious acid as a preservative. I could instance a case where I found upon examination, after a long absence, that the pulp was preserved absolutely perfect.

President Noyes—I would ask if the dialysed iron entirely removes the effect of the arsenious acid and how?

Dr. Ingersoll—I cannot precisely explain the process, but I know that it does it. The dialysed iron is laid down in the books as an antidote for arsenious acid.

Dr. Brophy—Said a tooth properly and skillfully filled was much better of course than one carelessly treated. It was a source of much pleasure to him to confirm the experience of Dr. Black. He

too, opposes the use of oxy-chloride of zinc, as not compatible with the parts. He has removed many caps where it has been used, and found dead pulps. As to the use of carbolic acid, he does not see the necessity for producing coagulum. Why should we destroy to make well? Thinks we ought to avoid the use of everything tending to inflammation and irritation. As Dr. Newkirk has well said, we might use a spoon-shaped instrument. His idea is good. And, as Dr. Sitherwood has said, Listerine is an excellent antiseptic. Temporary dressing of the exposed part, so that it can subsequently be capped, is, in his judgment, an effective and practical treatment.

Does not believe in the sometimes received and advocated opinion that the application of arsenious acid should be removed in twenty-four hours. Thinks forty-eight hours, or even two or three days will do better.

Dr. Spalding—Do you think a week any too long?

Dr. Brophy—None too long, sir, nor even two weeks.

Dr. Spalding—That's true.

Dr. Brophy (continuing)—I am inclined to commend the use of a heated instrument—heated to a white heat—to insert in the canal. Of course there is necessity to use it very speedily. The process is quick and painless. I favor, as a general practice, the saving of small portions of the pulp.

Dr. Ingersoll—The main question that occurs to me in the solution of this problem is the condition of the patient. I have no difficulty in treating the case; it is only diagnosing the condition of the patient that gives me pause. The discussion here, it seems to me, is chiefly regarding capping when the condition is normal. But what is to be done when the exposed pulp is diseased; the condition not healthy? Like Dr. Black, I attach great importance to the fact that the pulp diminishes as age advances.

The Chair (Dr. Noyes)—This is the most satisfactory discussion of the treatment of exposed pulps that I have ever heard. Diverse views are here expressed, and the methods of treatment here advocated are somewhat varying, but there is, I think, a general harmony on the main issue. In my view the conditions governing the treatment of the pulp are readily ascertainable; the same, in fact, as the

other tissues of the body. There should be simply antiseptic treatment with the least possible irritation, and a careful covering up of the exposed parts. Oxy-chloride of zinc, for instance, stimulates, but whether it overstimulates is the main problem. These principles are the key to the matter, and the apparently diverse views here expressed are reconcilable, I think, if it be considered that good judgment and careful methods underlie all. (Applause.)

Dr. Crouse—I call upon the man who converted me to give his views. There he stands—*Dr. Cushing*.

Dr. Cushing—I have little to say. This has been a good discussion, but one or two points may, perhaps, be elaborated. I was pleased with the position taken in the opening of the paper—that the condition of the patient should govern and determine the question of capping or not capping. Doubtless, many pulps ought not to be capped. *Dr. Newkirk* has well emphasized the necessity for skillful use of good instruments. I have, myself, had considerable experience in the capping of pulps, and I believe that by judicious treatment they can nearly always be saved. My experience is that the method is successful even with children. As to age, it is doubtful if it should be performed when the patient is over thirty-five years of age; it is then liable to be unsuccessful; but at forty I think failure is almost inevitable. Also, where there has been inflammation of the parts since maturity, success in capping is very doubtful.

Dr. Black—We must not, I think, consider that success is doubtful because there are some failures. I spoke of cases where patients came with pulps already dead, though not exposed. There may be incipient or chronic abscess, but the process of capping is ordinarily successful.

Dr. Newkirk—Regarding the condition, I would say if the patient is healthy or has a smooth skin, that betokens a good condition. But I insist that the patient should be fully informed of the nature of the operation, and that the chances of failure are at least ten per cent. I think an error often obtains in removing the temporary filling too quickly after the pulp has been capped. It is

better to leave it much longer; then there is less liability to after complaint.

Dr. Spalding—I do not like to have this interesting discussion closed without emphasizing one point, and that is, the importance of preserving the pulp in young subjects. Up to, say, sixteen years of age, the extirpation of the pulp and the filling of the root canals is a very uncertain operation. Young practitioners may infer that they have a license to destroy pulps at any age. The age of the patient is an important consideration in determining the treatment.

Dr. A. W. Harlan—Closed the discussion. He was of the opinion that pulps are very frequently capped too hastily. A patient calls, and the dentist having nothing else to do, perhaps, immediately caps the pulp; and this with the expectation of success. This is all wrong. A course of preliminary treatment is necessary. Nor did he believe in exposing pulps. He did, however, believe in trying to save them—especially the pulps of young persons. We should make the attempt in any case.

As an antiseptic, his experience led him to commend iodoform mixed with oil of cinnamon, by which the odor was rendered less pungent. So prepared, iodoform was not only a good antiseptic, but a stimulant as well. Regarding the treatment, he preferred oxyphosphate of zinc as the capping material. This should be protected and kept in position by a gutta percha filling, very carefully introduced. This prevents the washing away of the cap before hardening. At the close of his remarks the society adjourned.

WEDNESDAY MORNING SESSION.

Upon the calling of the regular order, Mrs. Dr. Kate C. Moody, of Mendota, read an entertaining essay on "Reflex Pain," which elicited much favorable comment. She was the only lady dentist present who participated in the proceedings. She considered pathological conditions productive of real or true pain, and compared the same with reflex or sympathetic pain. She regarded irritation as a chief cause of real pain, and stated that reflex pain was readily experienced in its effect, but its causes could not be easily determined. The relations of sympathetic nerves were frequently

established through the existence of pain. Neuralgia, in its various forms, was instanced as productive of a large degree of real pain, and to disordered blood could doubtless be attributed much of the nervous disturbance which might be classed under the head of reflex pain. The essayist urged the cultivation of knowledge of the real causes of pain, to the end that the distress thus engendered might be speedily and effectively alleviated.

Dr. A. W. Freeman—Had frequently noticed reflex action arising from the dental organs afflicting the pneumogastric nerve; said inflammation was always perplexing when the cause was not apparent. He was also greatly surprised at the workings, at times, of certain remedies. He would cite a case that caused him a great deal of perplexity. The case was that of an apparently sound person, with apparently sound teeth, suffering great pain. On examination he found the teeth were really so loose that with his thumb and finger he could pull them out. Of sympathetic cases this one was the most remarkable he had ever seen. He asked the lady to call again. The pain was traceable to the reproductive organs, influenced especially by first conception. In a couple of months the teeth became firm.

He had a second case, that of difficult dentition. There was diarrhoea present, with great difficulty in checking the bowels, as there was much irritation of the lower passage. Finally he prescribed laudanum mixed with castor oil. There was chorea all this time. Pressing hard against the gum he cut it, and soon the tooth, a canine, made its appearance, and the child recovered. There is often observed in cases brought for treatment irritation of the dental organs, and a sort of muscular twitching simulating chorea. He had noticed it in a little grandson of his own, when suffering pain. He himself had a habit of muscular twitching at times.

Dr. Black—Said he would note one point, and try to be brief. He referred to the close kinship or relation between reflex pain and reflex motion, or motor disturbances, especially of the vaso-motor system. It is generally conceded that neuralgia is the result of deficient blood supply, yet it is singular that we may have neuralgia in persons not anemic. These points do not coincide. He knew

very well that we understand reflex motion better than we comprehend reflex pain. He supposes these reflex pains, which are of the order of neuralgias, are brought about through the lack of blood caused by vaso-motor disturbances. The probability is that the pain is due to the condition of the vessels that supply the blood. Local tension may produce local neuralgia. He thinks, therefore, that it may be stated as a principle that neuralgia is the result of local tension.

The doctor cited the case of a patient unable to maintain an upright position. Careful examination disclosed that the tension was an insufficiency of blood on one side, so an upright position was untenable. The same remedy applicable in neuralgia will apply here; in fact, will apply in almost all cases not neuralgic, as well as in neuralgia produced by over tension. Absolutely we know nothing about these things. We can only construct our hypothesis to agree with the facts.

Dr. Townsend—Do you hold that, the cause of pain being on one side of the jaw, it will affect the other?

Dr. Black—Yes.

Dr. Patrick—We see by the latitude this discussion has taken how difficult it is to confine or circumscribe a specialty. "No pent-up Utica contracts our powers."

The movements which are caused in the nerves of special sense by external agents are numerous; in fact, it is external influence only that excites the organs of special sense to action. It is an ultimate fact in nature that consciousness is the result of stimulated nervous tissue; we know that we smell with our noses and see with our eyes; we cannot smell with our ears or see with our tongues; and yet, the gustatory and auditory nerves are in substance like the optic and the olfactory. The difference in function is evidently in the arrangement of the nerve cells and the disposition of the channels through which external agents have to travel to reach them. We constantly feel in spite of ourselves, for it is impossible for us to avoid having sensation when any object excites a nerve; the sensation is within us, but is dependent on external influences; we receive it, but how? It is evident that there is no

connection between the words which I utter and the impression which my words have upon your brain; and how diversely the same words will impress different individuals! Witness the effect produced on the mind and body of an individual surrounded by a gay and happy company, who receives a telegram from the hand of a messenger, the few lines of which convey to him the intelligence that a great calamity has befallen his nearest and dearest friend. The shock throws him into convulsions; his friends endeavor to pacify him, but he is completely prostrated; a fever sets in and he is delirious for weeks, but finally recovers; his friends sympathized, but were not afflicted in the same manner; they saw the same characters on the scrap of paper that were seen by their unfortunate friend, and the intelligence was conveyed to their minds in precisely the same way. Yet how different the result on the nervous system.

Again, two individuals are engaged in conversation. Presently one utters words that jar upon the auditory nerves of the one spoken to; the vibrations pass from the nerves of special sense and seize upon the motor system of nerves; these contract the fibers of the levator muscles and suddenly pass the impulse to the extensors, which extending the arm with great force knocks the speaker down; and what for? simply for agitating a little air, the waves of which, passing to the auditory nerves of the one spoken to, were reflected back to the speaker in the form of a repulsive blow. Why should not this phenomenon be classed as an instance of reflex pain? The property of a nerve cord to receive an impression and conduct it inwards is common to all nerves; but there are certain nerves that not only have the property of receiving and conducting an impulse inwards, but also have the power to return the same impulse outwards; these are ganglionic nerves, and are distinguished from all others by nervous knots, composed of gray matter, which knots distinguish them, physiologically, as central organs, and endow them with the power of reflex action, whether of pain or pleasure. The reflex power is possessed by the gray matter only, and not by the white substance of the cord. The afferent impulse being converted into an efferent impulse, producing what is called reflex action, is

beautifully illustrated in the expansion and contraction of the iris in accommodating itself to the luminous vibrations which produce the sensation of light, when the light passes through the central opening or pupil, and thence through the lens to the retina, where it is received by the nerves of the retina on its concave surface; now, if the light be too strong, the small ganglia connected with the nerves which control the movements of the iris, instantly transmit an efferent impulse, which contracts the pupil and shuts off the light; if, however, the luminous vibrations are not sufficient to produce a strong sensation of light (as in a dark room), the iris expands and the pupil is enlarged by the same process of reflex action. The points of a star-fish are supplied with nerves and ganglia to produce a reflex action; touch one of the extended points and the impulse is carried toward the center to the ganglia controlling the point touched; at once the ganglia return the impulse to the muscles, which immediately contract, and the point curls up. A similar phenomenon is produced when a frond of the sensitive plant is touched; the frond, however, having no muscles to contract, simply droops. Are those ganglia that we find in plant and animal, that bring about such positive action, endowed with intelligence? or are all these phenomena merely a manifestation of chemical and mechanical energy? When we pass beyond the boundary of physics into the region of metaphysics, we become as men born blind discussing the nature of light.

The speaker exhibited a tooth with an exostosed root, showing an elongation of the root rather than an enlargement of its diameter, adding that this process had gone on, although the connection of the nervous system with the pulp had long been severed, as was proved by an examination after extraction.

Dr. Conrad—Inquired if visitors were privileged to speak, and being assured in the affirmative, said that, in his view, in discussing reflex pain there was a confusion of terms, and it should be reflex action; not a pathological condition as described by the essayist, but rather physiological.

On motion the subject was passed.

(TO BE CONTINUED.)

SOUTHERN DENTAL ASSOCIATION.

SIXTEENTH ANNUAL MEETING, HELD AT LEXINGTON, KY., MAY 6, 7, 8 AND 9, 1884.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

(Continued from page 374.)

AMALGAMS.

The President—Stated that Dr. Patrick had a letter from an officer of the Ordnance Department in reference to the swelling of amalgam in the mouth, instead of its contracting. He proposed it should be read.

Dr. Patrick—Stated that in a paper read in Boston, he had taken the ground that amalgams were poor things. In the course of his reading he never could get anything satisfactory as to the nature of amalgams. His experiments were so at variance with his authorities that they were very unsatisfactory. His paper, published by the American Dental Association, cost him a great deal of research. That paper, throughout all the journals, had never received a particle of attention, though he had been particular in sending it to every dental journal in America and Europe. It did not receive even a direct acknowledgment, except in one or two instances. That pamphlet was either full of error or full of truth. In either case it deserved attention; but the same men who ignored it will talk by the hour about dental education. It had been given him as a reason for this non-attention that the proprietors of most of our journals have too much amalgam to sell. He did not believe it, for he gave these men credit for business capacity, and believed the time would never come when there will be no amalgam used. It is a good democratic material to use, for it brings all dentists on a level. He had noticed that articles on the other side always received attention. He had been consulting a reliable authority on ship-building, railroad construction, etc.; it was the engineer's text-book "Haswell." In it he read that "all amalgams expand," and yet in every advertisement of an amalgam it is warranted to contract. He wanted to know the reason of expansion, and wrote

to a friend at Washington, Lieutenant Kossuth Niles, of the Ordnance Department, whose answer was that he could not find anything on the expansion of amalgams in cooling and mixing, and that he had spoken to Dr. Woodbridge, whose experience was that amalgams expand in cooling and mixing.

In answer to a question as to whether that could not be accounted for in the change of the cells to globes, Dr. Patrick said there were so many different kinds of amalgams that it was difficult to tell. He could not answer without some particular amalgam was specified.

Dr. Patrick—Asserted that an easy flowing solder should never be mixed with any base metal. Jewelers or goldsmiths never use any base metal in their solder. Take 20-carat gold and use 18-carat solder. You cannot use solder that will free you from the responsibility of the blow-pipe. He read this formula: gold, 89; silver, 7; copper, 4. He advised that solder never be kept on hand. Prepare the plate first, then make the solder from that gold; but never keep it over. Melt the residue up with the plate, and make fresh solder for the next case.

In answer to a question he said, if 22-carat gold be used in the formula, that will make about 19-carat solder, and you cannot tell it from the gold plate when polished. In filagree-work requiring fine solder, the work is boiled in nitric acid to bring out the color.

Prof. II. A. Smith—(of Cincinnati), supposed amalgams must not be used, and spoke ironically against them.

Dr. How—Knew that if thin glass beads were filled with some amalgams they would be broken by the setting of the amalgam.

Dr. Smith—Supposed that was on account of the particles taking the spherical form, and spoke further of the utility of amalgams.

Dr. Rehwinkel—Spoke of crowning teeth when a root is broken under the gum. In filling with amalgam that comes to the edge of the gum, the latter is irritated, and one is never sure of the stability of the material at that point. In case the inner or outer cusp is broken, he takes a thin sheet of platinum to form a band.

Binding a thin copper band round the root, to reach under the gum, he fits it closely to the stump, fills the open end with plaster-of-Paris and when it has set withdraws it. This gives him a complete impression, and by filling with fused metal the exact model is obtained, over which the platinum band can be fitted. He cuts so that the crown will overlap, thus covering, protecting and strengthening the root and amalgam joint.

The President—Inveighed against the use of ill-smelling copper when platinum will do, and is so much cleaner.

Dr. Rehwinkel—Supposed copper was more economical, hence its use.

The President—Then called attention to the new German practice of filling teeth—the rotary method. Dr. Rehwinkel had translated an article from the German on the subject, and he would like to hear from him.

Dr. Rehwinkel—Stated that he had no practical experience of the method. Very dry amalgam could be used. He had not used the instruments for gold. It required a great deal of practice to become expert with the instruments and gain confidence. Langstaff had investigated the method and spoke highly of it, and Nicolet has adopted it and claims he can do anything with it. Experiments had been made in filling teeth out of the mouth, to find the adaptability of the filling. A matrix is indispensable, as a bud-shaped condenser is used.

The President—Said he had got a set of instruments, and had tried them on teeth out and in the mouth. There was much of good in the rotary method in applying gold to the side of a cavity. He had not been successful, but could not say whether the secret of success was in the peculiar gold used or the manner of using it.

Dr. Rehwinkel—Thought the gold used was something like our soft silver.

Dr. How—Stated that he had been engaged in some experiments but had not finished them. He was of the opinion that the instruments worked better after the gold had entered into their surface.

TRAFFIC IN DENTAL DIPLOMAS.

Dr. F. H. Rehrinkel—(of Chillicothe, Ohio), referred to the traffic in diplomas, carried on by the Wisconsin Dental College. He recently had a letter from Dr. Petermann, of Frankfort-on-the-Main, stating that this disgraceful business is in full blast again, complaining of the utter indifference of the dental profession, and that no effort is made to stop the dirty commerce. It would be remembered that in the case of the Buchanan College of Pennsylvania, it was left to a member of the press to begin the fight. Dr. Petermann engaged in a seven-years war, and he is now ready to take up the gauntlet with the Wisconsin Dental College, and wants the aid of the profession in America. These diplomas are not worth the paper on which they are written. Their issue may be legal, because of the lax laws of that State. Every state should take it up and bring pressure to bear on the State of Wisconsin to have the charter repealed. About two years ago an offer was made to him of a diploma on parchment for twelve dollars, and he felt disposed to resent it. He believed it to be the duty of the profession to knock the traffic on the head. As the Wisconsin College has a legal existence it would be necessary to move, as in the case of the Buchanan College, through the Legislature of the State. The government of Germany has already taken notice of it, and the matter will probably be made one of diplomatic correspondence, but it would be well to take action to strengthen the hands of the Germans.

The President—Hoped action would be taken, and called upon Professor Morgan, of Nashville, Tenn., who condemned the manner of issuing low-class diplomas. He did not know how to reach the evil, which is of deep interest to the profession in the eyes of Europe, unless an expression could be drawn forth from the State of Wisconsin. Everybody knew the dirtiness of the case, and that the practice degrades the profession in the United States.

It was, on motion, resolved, that a committee of three be appointed to draft resolutions in respect to the matter; and the President appointed Dr. A. O. Rawls, Professor W. H. Morgan, and Dr. B. H. Catching.

(TO BE CONTINUED.)

AMERICAN MEDICAL ASSOCIATION.

SECTION ON ORAL AND DENTAL SURGERY.

SESSION OF MAY 8, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY JNO. S. MARSHALL, M. D.

(Continued from page 391.)

The section was called to order by the chairman.

The minutes of the last meeting were read and approved.

The secretary read the following report of the Committee on "Appointment of Dental Surgeons in the Army and Navy."

Mr. Chairman and Gentlemen:

Your committee beg leave to report that, in harmony with the suggestion made by them in their report at the meeting in Cleveland, they have endeavored to secure the co-operation of the Surgeons-General of the Army and Navy in gathering statistics in regard to dental diseases prevalent among the soldiers and sailors of the United States. We have the pleasure to report that our request was not only courteously received, but both gentlemen promised to give it careful consideration.

Your committee suggested that the best means of gathering these statistics was to amend the blank reports of the Surgeons by the incorporation of such additional items in the present reports, under the head of Diseases of the Teeth, as would secure the information desired, and at the request of the Surgeons-General a list of items was prepared.

The matter is still under advisement, and we are expecting in due time to receive information of its further progress.

Your committee desire also to express their appreciation of the valuable services rendered them by Dr. Edward Maynard, of Washington, D. C.; all of which is respectfully submitted.

W. W. ALLPORT, *Chairman*,
JACOB L. WILLIAMS,
JOHN S. MARSHALL.

Dr Friedrichs moved the acceptance of the report, and that the committee be continued.

Dr. Williams presented, as chairman of the Committee on Resolutions on the death of Prof. Samuel D. Gross, the following resolutions:

WHEREAS, In the fullness of years and after a life of devoted study and most distinguished services as a practitioner, lecturer, and writer on surgery, it has pleased an all-wise Providence to remove from his earthly labors Prof. Samuel D. Gross, one of the most eminent surgeons that America has ever produced; and—

WHEREAS, He was largely instrumental in securing the establishment of the section on Dental and Oral Surgery in the American Medical Association; and—

WHEREAS, By his years of uniform interest and efforts in behalf of a thorough education of dental surgeons in general medicine, he has placed our department of practice under enduring obligations to him; therefore be it

Resolved, That the medical profession has lost one of its most eminent and useful members, and our section mourns the loss of one of its warmest and most devoted friends.

Resolved, That the foregoing preambles and resolutions be inscribed upon the minutes of the Association, and that the secretary be instructed to transmit a copy to the family of the deceased.

JACOB L. WILLIAMS, *Chairman*,
W. W. ALLPORT,
GEO. J. FRIEDRICHS,
TRUMAN W. BROPHY.

On motion the resolutions were unanimously adopted.

Dr. Marshall—Stated that it had been the custom of the section to recommend to the Nominating Committee of the Association the names of those gentlemen whom it desired for its officers, and as the committee would make its final report as *per programme* on Friday morning, it would be well if the section would make such recommendations at this meeting. He therefore moved that the section proceed to take an expression of the wishes of the members

by an *informal* ballot for chairman and secretary. The ballot resulted in recommending Dr. W. W. Allport, of Chicago, Ill., for chairman, and Dr. Edward C. Briggs, of Boston, Mass., for secretary.

Dr. Friedrichs—Said that the recommendations would come too late, for the Nominating Committee had made its final report this morning.

Dr. Williams—Could not see why the committee should have reported the names of section officers without a conference with the section; it was entirely unprecedented, and he could not understand it.

Dr. Harlan—Said *he* had been chosen chairman, and Dr Mears, of Philadelphia, secretary of the section, by the Nominating Committee, and thought the action of the section was very unwise, but in view of the preference manifested, would decline in favor of Dr. Allport.

Dr. Marshall—Asked if Dr. Mears had been present at any of the sessions of the Association.

(*Dr. Stellwagen*—No!) According to the by-laws of the Association then the office of secretary is also vacant, and he moved that the Nominating Committee be asked to reconsider its action in nominating officers for this section.

Dr. Williams—Moved that the secretary be instructed to at once report the action of the section to the chairman of the Nominating Committee, and call his attention to the fact of the absence of Dr. Mears, and ask for a reconsideration of the nominations for this section.

Dr. Harlan—The secretary will please also state to Dr. Hooker, the chairman of the committee, that I decline the nomination of chairman.

There being no other miscellaneous business the chairman called for the reading of the paper by Dr. Harlan, of Chicago, Ill., on "The removal of stains from the teeth caused by the administration of medicinal agents and the bleaching of pulpless teeth."

SYNOPSIS.

THE REMOVAL OF STAINS FROM THE TEETH CAUSED BY THE ADMINISTRATION
OF MEDICINAL AGENTS AND THE BLEACHING OF PULPLESS TEETH.

BY A. W. HARLAN, M. D., CHICAGO, ILL.

The paper opened with the statement that a large number of medicinal agents administered by physicians temporarily stain the teeth, but very few have any permanent effect. The mineral acids, nitric, sulphuric, hydrochloric, etc., if used for long periods, may temporarily stain the teeth and also have a deleterious effect upon their mineral constituents, but the staining is so slight that no particular methods need be devised to restore their normal appearance. The vegetable acids may likewise be dismissed. The tannates and astringents generally do not permanently stain them, and the same may be said of the ferrum preparations—tobacco, rhubarb, infusion of saffron, carmine, catechue, iodine, and kindred agents. These temporary stains are usually removed with ease by the use of dentifrices, but occasionally it may be necessary to polish them with wooden or leather points charged with fine emery or pumice-stone, followed by powdered rotten stone or precipitated chalk, incorporated with thick solution of white castile soap. In cases where the enamel has been fractured, or the masticating surfaces have been deprived of their enamel by wear, tobacco stains permanently, and there is no remedy for the stain, except to cap the teeth with gold, and this is seldom found necessary unless the ends of the teeth become so sensitive from wear as to need protection.

The single medicinal agent which I have found to stain the teeth permanently is nitrate of silver. Solutions are frequently used in the mouth and throat of too great strength. Many times the powdered nitrate is used to dust diseased mucous membranes, and the teeth often suffer in consequence.

Occasionally dental surgeons use the solid stick in treating the necks of sensitive teeth and to arrest incipient caries. Carelessly used, it causes unsightly stains, and these are the cases we are called upon to treat. No amount of polishing will remove these stains without injury to the external surfaces.

The agents which may be used are not numerous. Cyanide of potassium, iodide of potassium, tinct. of iodide, and liquor ammonia fortis are all recommended. Other substances are used to remove fresh stains, notably solution of chloride of sodium if used immediately.

I recommend as the neatest, safest, and most certain method to adjust the rubber-dam, dry the teeth and paint them with the compound tincture of iodine, allowing it to dry, then moisten the surfaces with stronger liquor ammonia for two or three minutes, and then wash with peroxide of hydrogen. The stains will disappear in consequence of the chemical change resulting in the formation of iodide of silver and nitrate of ammonia. They are afterwards to be polished in the usual manner.

BLEACHING PULPLESS TEETH.

Most of the methods in general use are faulty, and few are useful in all cases. In order to bleach a pulpless tooth the operator must first fill the root for one-third its length. All decay and fragments of pulp should be removed, but discolored dentine, if hard, need not be cut away. Adjust the rubber-dam over the tooth to be operated upon, including those immediately contiguous; the cavity is first repeatedly washed with H_2O_2 , then carefully dried by the use of the hot blast syringe. A small quantity of chloride of alumina is next placed within the cavity and moistened with peroxide of hydrogen and allowed to remain about five minutes, and then washed out with a clear solution of sodæ biboras, $Na_2B_4O_7 \cdot 10H_2O$ —and thoroughly dried. The tooth in most cases will be found to have resumed its normal color. The change of color has been brought about by the complete oxidation and destruction of the contents of the tubules. A tooth to be bleached should not be soaked with creosote, carbolic acid, alcohol, or any other substance capable of coagulating albumen. When such agents have been used, first wash the cavity with a clear solution of sodæ biboras, and then follow the method already mentioned.

The bleaching of the tooth is brought about by the rapid liberation of chlorine from Al_2Cl_6 , in the presence of H_2O_2 , resulting

in the formation of H Cl , and $\text{H}_2 \text{O}$, leaving unsatisfied O H , and Cl .

In order to maintain the color oxy-chloride of zinc should be used to fill the remainder of the pulp canal, and as much of the cavity of decay as the judgment of the operator will suggest. The oxy-chloride should not be allowed to become moistened with the saliva or other fluid, and as soon as it is sufficiently hard, the balance of the cavity filled with gold. Moisture coming in contact with the oxy-chloride jeopardizes the permanency of the color on account of its speedy absorption of fluids.

DISCUSSIONS ON DR. HARLAN'S PAPER.

Dr. Friedrichs—I used to attempt to bleach teeth years ago, but have not made such an effort in the last ten years. If our services are engaged in season, there should be no occasion for bleaching, and I very seldom see a case now that requires such service.

Dr. Harlan—I have tried all the known remedies for discolored teeth, and think from such experience that peroxide of hydrogen combined with chloride of aluminum are the most successful agents. It is important, however, that the drugs be good. I think Trom-droff's peroxide of hydrogen and Merk's chloride of aluminum are the most reliable.

Dr. Friedrichs—In reference to the stains of nitrate of silver (Ag. N O_3), I prefer to remove them by mechanical means rather than make the attempt by the use of chemicals. A stick and pulverized pumice-stone are all that is needed to effectually remove such stains.

Dr. Brophy—I would ask Dr. Friedrichs if he does not find in some cases that the stains have penetrated too deeply to be removed by such means.

Dr. Friedrichs—I have used this means to a very great extent, and am entirely satisfied with it. I have had a great many patients suffering from "erosion" and find that Ag. N O_3 stains do not penetrate beyond the control of such mechanical means as I have mentioned.

(TO BE CONTINUED.)

CHICAGO DENTAL SOCIETY.

JUNE MEETING.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY A. E. BALDWIN, M. D.

President Harlan in the chair.

The subject of the evening was "Dentition."

A concise and well written paper on the subject was first presented by Dr. P. J. Kester, who commenced by saying, that in the past men were ruled by prejudices and opinions, but in the present we think and investigate, and as theories are proved or disproved, they are accepted or rejected.

By "dentition" we mean that process by which the tooth is impelled to leave its crypt in the alveolus, and is propelled through the jaw and gums, and makes its appearance in the mouth. This name has been used as a cloak to hide more professional ignorance than that concerning any other one physiological process of the human economy.

The people at large, and many of the profession, believe that teething causes nearly all diseases of childhood or infancy. The writer considered the subject under two heads: First, dentition as a physiological process; second, dentition and its relation to disease. Concerning development of the germ he commended Dr. Dean's "Dental Follicle," and in regard to calcification Dr. Tomes' works; but as to the eruptive process, *per se*, information is meager, opinions varying from that expressed by an old edition of Fox & Harris, which says "a passage for the teeth is opened by the process of ulceration," to the latest life force theory, as laid down by Dr. Black in his admirable lectures on the resorption of tissue by the action of the connective tissue cells taking upon themselves the office of odontoclasts.

As to the relation of dentition to disease, the essayist said it is claimed that nearly all diseases of infancy and childhood are caused by this process—the older the authority the greater the number enumerated—but all seem to dwell upon the fact that as dentition is in progress it must be the causative influence of all, or nearly all, infantile diseases.

After enumerating many authorities, the writer said that he is led to believe that improper or insufficient food and dress, poor sanitary conditions, decaying organic matter, bad drainage, etc., etc., are more to blame, in a majority of cases, than is dentition. He quoted Dr. Little, of the Rochester Orphan Asylum, as stating that the principal causes of enteric diseases are over feeding, poor diet, and bad sanitary conditions, and Dr. Jacobi as asserting that these diseases come from over feeding, hot and foul air, but never from teething.

In concluding, the writer, after quoting largely from the many standard authors, summed up with these thoughts: There is no doubt there are many disturbances in the mouths of children during dentition, but we believe them to be either symptomatic of some disease of the digestive or nervous system, or due to accidental or local causes. If it be true that dentition, being a physiological process, has no direct influence on the general system, with the exceptions noted, it is our duty as professional men to teach our patients the danger of attributing diseases to it: for in our opinion, the quota of presidential possibilities is lessened every year by the belief that dentition is the cause of disease.

DISCUSSION.

Dr. Marshall—Said that he regarded the process of dentition as somewhat analogous to foetal expulsion in childbirth, for in both the process is hastened by the contraction of the adjacent tissues. He stated that while he regarded dentition as physiological, he felt convinced that he had seen many cases where the diseased condition of the child rapidly subsided under the judicious use of the lancet on the gums.

Dr. Noyes—Thinks we must consider the process as a physiological one, and that when we find those disturbances commonly ascribed to dentition, it is, in his experience, easy to see that they are at least greatly aggravated by feebleness and poorly-nourished systems. In such cases prompt relief is usually given by attention to the gum.

Dr. Marshall—Thought that, as the cerebro-spinal system is very

early in its development, we may find in the existence of small, persistent irritation centers, the cause of the common ills of dentition, and the reason for the excessive death rate in children.

Dr. Reid—Has given the subject much thought and attention, and is led to believe that the judicious use of the gum lancet will relieve many, if not all cases of irritation.

Dr. Newkirk—Thought that in every process of development there is a demand for a certain expenditure of nervous or vital force. Thus, in a rapidly-growing child this may be excessive; so in a dentition that is developing too rapidly, pain and disturbances of various kinds may be the direct result.

Dr. Brophy—Commended the paper very highly, but said that some of the statements were not quite definite enough. In many cases, commonly credited to dentition, he had found the condition to be caused by intestinal irritation from the ingestion of starchy foods, which, before dentition, cannot be digested, owing to absence of ptyalin in the saliva. His observation leads him to think that the irritation of the developing tooth is not only at the cutting edge, but also at the formative end. The tooth lies in direct contact with the nerve, and in many cases the irritation is bad enough to produce ills resulting in the death of the child. He has found that cutting the gums gives almost instant relief, by letting out the congested blood. He desired to correct the impression that the cicatrix is more dense and harder than natural tissue. He also thinks that children often suffer, and that severely, from neuralgia, and that many diseases are caused directly from irritation in dentition.

Dr. Gregory—Thinks that in a child properly cared for as to clothing and diet, dentition is accomplished perfectly normally.

Dr. Crouse—Expressed his pleasure at the independent spirit manifested in the paper, and said that with many of the ideas he was in hearty accord. He thought that many times dentition was made to carry burdens properly belonging elsewhere. Thinks that diet has more to do with the ills of childhood than we think. Many things are fed to children that would cause irritation to the healthy stomach of an adult. He thinks that should children be warmly dressed, and fed properly and at stated intervals, as a rule

they would be markedly benefited. Thought that in many cases the judicious use of the lancet was very beneficial. He could not endorse the idea of severe neuralgia in children.

Dr. Mariner, of Ottawa—Cited a case where a physician in his city lanced the gums of a child, and the result was a death from hemorrhage. Since that time gum lancing has not been as popular with them.

After some other desultory discussion, the Society adjourned to meet in July.

THE CENTRAL DENTAL ASSOCIATION OF NORTHERN
NEW JERSEY.

A regular monthly meeting was held at the residence of Dr. E. H. Bunting, No. 15 New Street, Newark, N. J., May 19th, 1884. After the transaction of the regular routine business, Dr. B. F. Luckey, of Paterson, read a paper upon "The Care and Treatment of Exposed Pulp." (See page 430.)

DISCUSSION.

Dr. Watkins—I would like to explain that Dr. Luckey had not more than two days' notice to prepare this paper, which I consider an exceedingly creditable one.

Dr. Stockton—I know that pulps can be fractionally saved ; I am acquainted with a case where part of the pulp was excised thirteen years ago, and the remainder is still alive, and the tooth doing well. Our success depends very much upon the physical condition of the patient. There are those, the pulps of whose teeth becoming only slightly exposed and inflamed, it seems almost impossible to save them ; and there are others with an exposed pulp that has been aching for weeks, and yet it readily yields to treatment. In all doubtful cases it is better to fill the tooth temporarily, for three or six months, and then examine as to the condition before filling permanently. I very rarely fill a tooth at the same sitting at which I have capped the pulp.

Dr. Cosad—I am glad it was my privilege, even in my weakness, to be here and listen to the reading of so intelligent a paper.

Dr. Meeker—I have used a chloroform solution of gutta-percha for a number of years as a pulp covering, but I think it is liable to swell when used in a pasty condition directly over the exposure. I have met with gratifying success in the use of iodoform paste and asbestos.

Dr. Watkins—I have used asbestos felt for the past two weeks, in perhaps ten or twelve cases, for capping pulps where there was slight exposure, and where the pulp was almost exposed. In regard to its working qualities, my experience has been that it works beautifully under the instrument. It is soft and easily placed in position, and does not adhere to the instrument, or draw away like gutta-percha or other materials used in a similar way. After I have the cavity all prepared I cover the pulp with iodoform, cut a piece of felt the size the case requires, place it upon the instrument, touch it upon some liquid gutta-percha, and carry it carefully over the pulp, and now you will see the beauty of the felt. On account of its soft working qualities you can tap it all around the edges, and bring it closely down to the dentine, and there is no moving or shifting from place. You all know that I use iodoform, and how much I rely upon it in almost all cases of exposed pulps, or where the pulp is decomposed in preparing pulp canals, etc. I have had two cases in which I have used iodoform, that I would like to speak of. The first was a child about four years of age—left superior first temporary molar, posterior approximal surface badly decayed. In excavating, the pulp was slightly exposed, which I did not discover at the time I filled the tooth with gutta-percha. The child returned in about two days and complained that the tooth was aching. Upon removing the filling a small drop of pus exuded, which was the first information I had of the exposure. I washed it out with warm water, then with creosote, capped it, and again filled with gutta-percha. The child went home perfectly easy, but at the end of two days I had to repeat the same thing, and after trying different remedies several times with the same result, I decided to give iodoform a trial, for just about that time I heard Dr. Bodecker read a paper before the Odontological Society, where he gave a prescription to prepare the paste, and a

description of its use and success in his hands. The next time the child came in I placed some of the paste over the pulp, and covered it with a saucer-shaped cap of hard rubber, made very thin and filled with gutta-percha, and that is the last I have ever seen or heard from that tooth.

The second case was that of a boy twelve years of age, who broke the right superior central incisor diagonally across the center, exposing the pulp freely. I covered it with iodoform, and ran liquid gutta-percha (thick) over that, then filled with oxy-phosphate.

It has been my pleasure to see each of these cases during the past week. The first one had the appearance of a thin film of bone forming over the pulp, but on account of its position I dare not touch it to make sure, but refilled it with oxy-phosphate. In the second case there was a decided formation of secondary dentine over the pulp, and no sign of any exposure, so I built it down with gold, and do not expect to hear from it again. So much for iodoform. I have not so much faith as some of you have in saving pulps where there is much inflammation. Of late I have rarely tried to save them under these circumstances. Of course, I cap where there is not much inflammation, and make great effort to save them, but you know much depends upon the condition of the patient.

I have had many cases of dead pulps come into my hands for treatment after they had been capped, and some of them by our most eminent dentists, who were anxious to save them alive. I think, however, that more pulps can be saved alive with iodoform than with any other remedy. As for amputating pulps, I do not believe in it at all, and I think if those who are over-anxious to save parts of pulps alive would open them two years afterward, they would find a high state of putrefaction. I have found this to be so in all cases which it has been my lot to examine.

Dr. Luckey—I do not know whether the preparation of iodoform paste that I use is better than that recommended by Dr. Bodecker or not, but I *do* know that my treatment is successful, and is very seldom followed by any adverse results. Dr. Watkins believes that it is not possible to amputate and save a portion of the pulp

alive, but that all such attempts are unsuccessful, and that the remaining portion becomes a putrefying mass. I have treated a number of cases where I removed fully one-half of the pulp, and those teeth to-day are comfortable and doing good service, with all the indications and appearances of healthy normal teeth. I have not been inquisitive enough to open any such teeth for the purpose of ascertaining whether they were alive or not, but I think from their appearance and behavior that it is safe to assume that they are alive, for if such was not the case we all know from experience what trouble would be likely to result.

Dr. Watkins—I believe it is owing to the presence of iodoform that putrefaction is prevented, and as long as this is secured it is not at all probable that there will be any pain ; but I doubt very much if the pulp is alive in such cases.

Dr. Meeker—In capping pulps we often find that considerable inflammation ensues. In that case I use capsicum bags, and find that they do the work effectually.

Dr. Merritt—I have used split raisins sprinkled with cayenne, and find them as effectual as the capsicum bags.

NEW YORK ODONTOLOGICAL SOCIETY.

A regular monthly meeting of this society was held June 17th, at the residence of Dr. E. A. Bogue, 29 E. 20th Street, the President Dr. W. Jarvie, Jr., in the chair.

Dr. C. F. Ives—Spoke of a case of pyorrhea alveolaris, that had yielded to treatment beyond expectation, showing marked evidences of cure, yet he did not feel sure that the patient would not again be attacked by this annoying disease. The doctor also exhibited a small glass syringe, very neatly constructed, for injecting remedial agents into diseased alveolar territories.

Dr. N. W. Kingsley—Referred to a paper read before the society two months previously, by Dr. Dodge, on the tendency of some amalgam fillings to assume a spherical form after becoming hard. Conceding that *some* fillings of alloy might shrink or change shape, Dr. Kingsley felt sure that the amalgam he was using would

neither shrink nor expand. He attributed the changes spoken of as "recession of plugs from cavity walls," to improperly preparing cavities, or leaving the edges untrimmed and frail.

Dr. J. W. Clowes—Proclaimed enthusiastically the virtues of amalgam. He admitted that some of the alloys in market were bad, but that very many were good. He believed that failures resulting from its use were due to improper manipulation, as comparatively few knew how to use it. He would not give much for an amalgam filling made by a dentist who could not make a good gold filling. He had seen many cases where it had been used by dentists of high standing, but whose operations were miserably performed. His own fillings remained firm and did not change shape. He urged dentists to learn to use amalgam, that the difficulties referred to might disappear.

Dr. J. Smith Dodge, Jr.—Did not wish it understood that the paper he read condemned the use of amalgam, for he often employed this material in his own practice; neither did he state that *all* alloy fillings changed shape. It was nevertheless a fact that many *did* shrink and bulge out, and the object of his paper was to give what he considered the most reasonable theory for such changes. He did not believe that what was termed "shrinkage" was due to a neglect to trim cavity margins properly, for such changes are found in fillings on grinding surfaces of molars, where the cavity-walls are thick and strong. He had a tooth in his possession which he filled after extraction, with strong and well-trimmed walls, and although smoothly finished and burnished after it became hard, the filling had since receded from the cavity-margin and bulged out at the top. "It is somewhat curious" added the doctor, "that the failures we witness are usually from operations performed in the offices of our neighbors, and not in our own."

Dr. A. H. Brockway—Could say, from experience and observation that many amalgam fillings not only "bulged" but "budded." It was this *budging* that troubled him, and he was interested to know the cause of such changes.

Dr. C. E. Francis—Remarked that the interest he took in Dr. Dodge's paper had led him to notice more particularly of late the

appearance and condition of amalgam fillings that came under his observation. He had in this time seen a number of defective ones, some of which he had removed and substituted gold. Several were on grinding surfaces of molars, where the enamel was hard and the cavity-walls thick and firm.

Dr. W. A. Bronson—Read a paper in which he discussed the relative merits of the various forms of gold-foil for filling teeth. He objected to the practice of massing foil into balls, or rolling it into coils, on account of the difficulty of conforming them to the shapes of cavities. He considered ribbons of folded foil preferable, as slight pressure would force the air from between the folds and cause the flat surfaces to readily unite. For many cases, especially large approximal cavities, irregular and extending far into their cervical borders, he preferred cylinders, believing they can be more securely packed and that they make more reliable fillings. In some instances he commences with very large cylinders of soft tin foil.

Dr. J. B. Rich—Did not favor the use of cylinders, nor did he consider this form of foil capable of being reduced to a homogeneous mass. Upon pressure each cylinder becomes a flattened ellipse, the folds or layers increasing in number, and the cylinder in thickness as the centre is approached. Viewed in a scientific light, he declared it an impossibility to make a perfectly solid filling with cylinders. He asserted that ribbons of gold foil could be more perfectly adapted to cavity-walls, and would make the most compact fillings.

Dr. W. H. Dwinelle—Disapproved the use of cylinders, for reasons already stated by Dr. Rich. He preferred folds or ribbons. Dr. Dwinelle also referred to his success with prepared, or crystal gold.

Dr. E. A. Bogue—Presented two gold fillings of exactly the same shape and size, which he formed in a steel matrix—one from strips of heavy foil, and the other from cylinders. The former required much over an hour to consolidate; the latter was produced in less than twenty minutes. He favored the use of cylinders for many cases, believing they can be manipulated into excellent fillings in the least time. The saving of time, and consequently money, is with many patients a matter worthy of consideration.

Correspondence.

IODOFORM.

Editor Independent Practitioner:

I think it is now generally conceded by the members of our profession, that Iodoform is one of the best antiseptics at present in use. Its presence in roots of teeth from which putrescent pulps have been removed, and which for obvious reasons cannot always readily be made aseptic, is looked upon as a "friend at court."

Gutta-percha in chloroform is considered by very many successful men a reliable root filling, and so, being a believer in both iodoform and gutta-percha solution, I combine the two by making a saturated solution of iodoform and chloroform, and then adding gutta-percha enough to make it of the proper cream-like consistency for root filling.

With this combination in roots of teeth, such as I mentioned, I feel a certain security that I never have with any other material.

Cordially yours,

A. J. REINHOLD,

NEW YORK, July 17, 1884.

6 West 125th Street.

MARINE LINT.

Editor Independent Practitioner:

To those who still use cotton to fill root canals in whole or in part, or to those who use it as a vehicle to carry other materials, I would like to suggest Marine Lint instead. I have employed it to convey the chloroform solution of gutta-percha, and it may be used with any of the cements. It possesses advantages over cotton for these purposes, and seems to me to have a field of usefulness as a canal dressing. It possesses antiseptic and disinfecting properties, and will not absorb moisture. It has a long, tough fibre, and can be very easily and tightly packed.

If it is desirable to stop a root canal tightly for a time and maintain freedom of access, twist up a long rope of this and pack it closely within the canal, when you will have a tight, continuous,

non-absorbent, antiseptic stopping, which may be removed by pulling upon the end left free in the cavity of decay. It may be used also as a dressing in connection with other medicaments.

Yours respectfully,

E. D. DOWNS, D. D. S.

OWEGO, N. Y., July 7, 1884.

A CORRECTION.

Editor Independent Practitioner:

In the June number of your journal is an article in which the writer takes the trouble to put my name in print. Will you allow me a line or two to say that I attended a *full course of lectures* in the Baltimore College of Dental Surgery, in 1856, when Chapin A. Harris was dean. I hope the writer in the future will be correctly informed before publishing his articles.

Respectfully,

T. H. SCHAEFFER, D. D. S.

CHARLESTOWN, WEST VA.,

July 8th, 1884.

Editorial.

THE AMERICAN DENTAL ASSOCIATION.

On the fifth of August, the twenty-fourth annual meeting of the A. D. A. will commence its sessions in the Supreme Court Chamber of the Town Hall at Saratoga. In some essential respects this is the most important of all our societies, and its meetings should be attended by every representative man of the profession. That the society is all that its friends would be glad to have it, no one pretends. But it cannot well be made better unless there is a more general attendance upon its meetings. It is, perhaps, impossible that any one society should comprise within its membership all the intelligence of the profession. But the representative association of dentistry should command a membership and attendance com-

mensurate with its assumed position. If the American Dental Association cannot challenge the confidence and support of the profession, we shall heartily join in any movement that promises anything better. But that has not as yet been demonstrated. There has been at times a lack of enthusiasm, and the society has been handicapped too heavily. There has been a lack of carefully digested papers, and the discussions have sometimes been trivial. But the A. D. A. has a glorious record, and it only remains for the members to awaken to the importance of the occasion, and to remember that such an annual meeting is intended for something else than the consideration of local subjects, or the strife for position that has sometimes been observed. The men who will meet at Saratoga are abundantly competent to grapple with the broad principles that underlie dental Science, and from the mutual interchange of convictions and experience to educe rules of practice that shall be a law unto dentistry. But to accomplish this, mere considerations of personality, narrow prejudices in favor of individual methods, and preconceived opinions founded upon a limited observation should all be laid aside, and members should meet, resolved by careful deliberations to determine what in any particular case is most in accord with an enlightened knowledge of scientific practice.

The main object that should be kept steadily in view in such convocations is the discussion of scientific problems. The business questions, the machinery of the society, demand attention, but the constant tinkering with the by-laws, the endless introduction of amendments, and the long-winded, tiresome debates upon questions of order and points of precedence, are depressing in their influence. Thinking men do not travel hundreds of miles to discuss parliamentary laws. They desire enlightenment upon principles of practice. They wish to exchange views upon matters that pertain to their every-day business. If the President is prompt in his rulings, there is little necessity for hair-splitting concerning the exactness of his decisions. Even by-laws may at times, with propriety, yield to the best interests of the whole. It is to be earnestly hoped that every member of the A. D. A. will be present at the coming meeting, and that all will be dominated by the desire to make of it a memorable

time, an anniversary long to be remembered for the profit that each shall derive from it.

At the close of the sessions, on Friday evening, will be held the meeting of the National Association of Dental Examiners. There are many questions of importance that should come before this body, and all State Boards are earnestly requested to send delegates.

THE CURRENT NUMBER.

This number of the INDEPENDENT PRACTITIONER contains seventy two pages. The last number was one of sixty-four pages, and yet we cannot meet all the demands upon our space. We have laid aside a part of the editorial matter that had been prepared, and have cut down the space devoted to "current news" that we might give to correspondents the room that they demanded. Our only aim is to make a journal that shall properly represent the profession, and that shall be entirely devoted to those whom it represents. The class of articles that we accept and publish is therefore a broad one, for there are many interests to serve. Independent as we are of all manufacturing or mercantile interests, and of all schools and other organizations, we have felt it a duty that we owed to the profession to present many things that might otherwise have been unsaid. When an article has been received we have not enquired whether it was in accord with the belief or prejudices of the majority of dentists, nor even if it were palatable to individuals, no matter whether they were or were not personal friends and supporters of the journal. Our sole enquiry has been if the matter were likely to result in good to the whole profession. We think no one has hesitated to send communications that were opposed to the known and expressed convictions of the publishers, for we have not attempted to make this a personal organ, and have no pet theories that we wish to advance. This is a journal that belongs to the profession, and all shades of opinion shall have opportunity for hearing. Whatever will, in our judgment, advance the interests of dentistry, shall have place. We therefore welcome articles upon any subject connected with dentistry, but as our space is limited, they may

sometimes have to wait their turn for publication. That so many have been sent us is an indication that the INDEPENDENT PRACTITIONER is meeting with a large degree of popular favor, and is filling a needed place in our professional literature.

MISSING NUMBERS.

The unexpected demand for certain numbers of this journal has resulted in exhausting the edition. We are entirely out of copies of the issues for August, 1883, and for January, 1884. For either of these numbers that may be sent us, we will send a copy of Dr. Miller's "Fermentation in the Human Mouth," or we will pay cash if preferred. Any of our readers who may possess a copy that they have no further use for, will, in addition to receiving the above, confer a great favor upon this journal if they will forward it, at the same time notifying us, so that we may know to whom the obligation is due.

OUR BOOK TABLE.

THE ROLLER BANDAGE, by WILLIAM BARTON HOPKINS, M. D., *Surgeon to the out-departments of Pennsylvania, Episcopal and University Hospitals, Assistant Demonstrator of Surgery in the University of Pennsylvania, Fellow of the College of Physicians of Philadelphia, etc.* With seventy-three illustrations. Philadelphia: J. B. Lippincott & Co.

Every one who may be expected in the course of his avocation to apply a bandage, should understand the principles which govern it; but every such person does not, and this book was written for the purpose of giving the necessary information. To obtain the best results from this necessary surgical appliance it should be used according to definite rules, varying with each case, and these are hard to comprehend without an actual demonstration. The author has hit upon the happy idea of obtaining photographs from actual life, showing the various methods of application, and from them engravings have been made, and it is upon these that he mainly relies in teaching. Any one who has seen the roller applied by a master of the art, recognizes the importance of a study of its mysteries, and to those who have not had hospital opportunities, and indeed for many who have, this book will prove invaluable.

HEALTH HINTS FOR TRAVELERS: BY JOHN C. SUNDBERG, M. D.
Published by D. G. Brinton, Philadelphia. 1884.

This little work sets forth in plain language and in condensed form very many useful suggestions for travelers. Illness at home is bad enough, but among strangers it is doubly afflictive. Changes of diet and habits are always hazardous, and the tourist, who at home perhaps pays strict attention to hygienic laws, finds that abroad his care for himself is necessarily relaxed. The author of the work under notice is an old voyager, has had experience of all climates, and is therefore quite competent to advise those who are leaving home for their first extended tour. His directions have reference to the comfort of pilgrims as well as their health. It is full of counsel regarding the proper dress and equipment of travelers by sea and by land, by rail, in carriages, and on foot. There are some useful prescriptions for sickness, and directions what to do in case of accident. Altogether, the book is one that every intending tourist should carefully read.

TRANSACTIONS OF THE NEW YORK ODONTOLOGICAL SOCIETY FOR 1883. The S. S. White Dental Manufacturing Company, Philadelphia. 1884.

Perhaps there is none of our local professional societies whose meetings and discussions have attracted the attention of dentists to a greater degree than have those of this Association. Professional men everywhere have considered it an honor to be invited to address the members, and before them have been read some of the ablest papers that have graced our professional literature. Within the membership is comprised some of the most intelligent men of dentistry, and it will therefore readily be conceived that the discussions have been of a high order, and that the Book of Transactions will have a permanent value for every enquiring mind.

The volume for 1883 is issued in a style uniform with the preceding ones, and it is unnecessary for us to say more concerning it. The S. S. White Dental Manufacturing Company is known throughout the world for the excellence of the stock and implements that it makes. It seems very rapidly to be coming to the front as a publisher of professional books.

SIXTEENTH AND SEVENTEENTH ANNUAL REPORTS OF THE PEABODY MUSEUM OF ARCHEOLOGY AND ETHNOLOGY: Presented to the President and Fellows of Harvard College. Cambridge: Printed by order of the Trustees. 1884.

To any one who has visited the Peabody Museum at Cambridge and met its learned and enthusiastic curator, Prof. F. W. Putnam, any extended notice of the work that is being done there is quite superfluous. To those who have not had the privilege, it would be impossible to convey an idea of the wealth of archæological and ethnological relics that are there accumulated. We have before this taken occasion to express our personal obligations to the curator and his able assistants, and we can now only urge upon thinking, investigating dentists, an examination as careful as circumstances will permit, of the treasures there collected, assuring them that they will be repaid a thousand fold for the time spent.

NOTES UPON HUMAN REMAINS FROM THE CAVES OF COAHUILA, MEXICO, BY CORDELIA A. STUDLEY; Assistant in the Peabody Museum at Cambridge.

This is the record of a most exhaustive study upon some very interesting human relics, procured in 1880 by Dr. Edward Palmer, from four caves in the limestone formation in the State of Coahuila, Mexico. Miss Studley brings to her task a rare intelligence, and a thorough knowledge of ethnological science, and the result is a monograph of permanent scientific value. To any one engaged in the study of dental and cranial development, a reading of this pamphlet will be intensely interesting.

LISTERINE. *An antiseptic for internal and external use. Especially adapted to Dental Practice.*

This is an advertising pamphlet, and it is probable that some of the squeamish purists will take us to task for noticing it in this place. But while Listerine is a proprietary remedy it is far from belonging to the quack school. The formula is printed upon every label, and there is no secret in its manufacture. We believe that a notice of the pamphlet here will tend to more good than would the most elaborate review of a work on the Bacillus of Bunions, and surely that would not be considered foreign to these pages.

The little work is devoted to giving the practical experience of

many representative dentists and physicians in the use of Listerine, with some considerations of its therapeutic value. The copy that we have received is beautifully bound, and makes a very handsome volume. We have recommended the article; we now commend the book, and if anyone is harmed by either he may hold us responsible for the damages.

BERICHT UBER DIE VORTRAGE DES HERRN ZAHNARZT, W. HERBST, AUS BREMEN, gehalten am 14., 15., 16. Februar, 1884, in der Poliklinik des Herrn PROF. BUSCH, IN BERLIN.

The lately presented methods of Herr Herbst have attracted the attention of dentists everywhere. We have only a slight practical experience in them, but they are endorsed by good authority, and we believe his theories are worthy the investigation of every progressive dentist. In an early number we expect to be able to present the opinions of one who all will agree is entirely competent to analyze the whole matter. The pamphlet is a reprint from "*Correspondenz-Blatt fur Zahnarzte*" for April, 1884.

We have also received the following pamphlets.

Select Topics in the Surgery of the Nervous System and Report on Surgery; Read before the Illinois State Medical Society, May, 1884, by Roswell Park, M. D.; Professor of Surgery in the Medical Department of the University of Buffalo. Reprinted from the *Weekly Medical Review*.

On Embryology, with special reference to the development of the Teeth and contiguous parts. By J. L. Williams, D. D. S., New Haven, Conn.

Address on Practical Medicine, delivered before the American Medical Association, at the Thirty-fifth Annual Meeting, held in Washington, D. C., May, 1885. By John V. Shoemaker, A. M., M. D.

The Dense Water of the Ocean. By Lewis H. Beebe.

How to Grow Fine Celery. A new method. By Mrs. H. M. Cridder.

Annual Announcement and Catalogue of the College of Physicians and Surgeons. Baltimore, Md., 1884.

Current News and Opinion.

A FINE CHANCE.

The *Allgemeine Wiener Medicinische Zeitung*, contains the following advertisement in prominent type, with notice that applicants may obtain further information from the editor:

"A young unmarried doctor of medicine, of the Jewish persuasion, has the opportunity, by marriage and the succession to a lucrative dental practice, of insuring a very agreeable existence. The practice can be proved to be worth ten thousand florins per annum. The young lady in question is the daughter of highly respectable parents, seventeen years of age, handsome, well brought up, and equally well educated. Her father is desirous of retiring from the business, and will make over to a young doctor of medicine, without compensation, his dental practice and his excellent dwelling house, with all the material, dental instruments and apparatus, of the value of from eight to ten thousand florins. A knowledge of the dental art is not at first requisite, as under the tutelage of the present possessor this can be acquired in a few months."

This should be read in conjunction with the advertisement of a Canadian community, in which one church denomination was dominant, and in whose local paper a loud call was made for a "Baptist dentist." In the latter case, a "knowledge of the dental art" was probably not as essential as a firm belief in the doctrine of full immersion.

PRE-HISTORIC DECAY OF THE TEETH.

The ancient Etrurians, who flourished in Italy before the founding of the Roman Empire, were in some respects the most remarkable people that ever existed upon the earth. Modern and recent excavations in their ancient burial places at Volterra, have resulted in the securing of great numbers of the teeth of this early race.

They give evidence of the most extensive decay, and of the existence of most of the modern dental diseases. Yet many writers and speakers who derive their facts from their theories, are continually referring to caries as the result of modern errors in diet, and a departure from the original state of nature in which man was made to live.

THE SARATOGA MEETING.

In reply to the application of the Chairman of the Executive and Local Committees of the Association for reduced fares to Saratoga, the "Joint Executive Committee" of the various Passenger Lines has returned the following reply:

It will therefore be necessary for some member at each point referred to, to apply to the General Passenger Agent at his point of departure for more explicit information.

Persons attending the meeting from New York, via N. Y. C. & H. R. R. R. can purchase tickets for the round trip at \$7.50.

The lines running east of New York, not being included in this combination—application must be made to their General Passenger Agents for rates.

We beg to call the attention of intending excursionists via Washington, Cincinnati, etc., to the advertisement of the New York, West Shore & Buffalo Railway Co. Passage by that route would doubtless be an improvement over any other.

MEYER L. RHEIN,

Chairman Local Com.

FRANK M. ODFELL,

Chairman Exec. Com.

OFFICE OF THE CHAIRMAN JOINT EX. COM.,

346 BROADWAY, NEW YORK, June 23d, 1884.

DR. M. L. RHEIN,

No. 7 West 38th Street, City.

DEAR SIR:

Referring to your application of the 2d inst., to Mr. E. J. Richards, A. G. P. A., for special fares to the meeting of the American Dental Association, Saratoga, August 4th to 9th, this committee in session last week decided that from the line of the following named roads:

N. Y. C. & H. R. R. R.

N. Y., L. E. & W. R. R.

Penn. R. R.

N. Y., W. S. & B. R. R.

D., L. & W. R. R.

B. & O. R. R.

covering the territory east of Buffalo, Salamanca, Pittsburg, Wheeling and Parkersburg, round trip tickets will be sold at the regular fares for summer tourist tickets. From the territory west of the points above named to Chicago, Cincinnati and St. Louis delegates will be furnished round trip tickets at one and one third the lowest unlimited fares; such tickets to be sold August 1st to 5th inclusive, good for return passage to starting point to and including August 15th, 1884.

I would refer you to the General Passenger Agents of the lines interested in the business for any further information necessary to carry out the details connected with the transportation of your people to the meeting.

Yours truly,

R. T. REYDER, Secretary.

(14.) Sometimes a pulp partly devitalized, or a fragment of pulp, will remain in so sensitive a condition as to defy efforts to remove or fully destroy it. Will some one please inform me what to do in such cases? NEW JERSEY.

(15.) We sometimes find the permanent incisors in mouths of young people rough or serrated on their cutting edges. Is it best to grind them smooth, or leave them unmolested? G. B.

(16.) I have used Listerine and find it a pleasant preparation; but I would like to be informed if it is *really* an "antiseptic" or "germicide." T—.

(17.) Dentists talk about "*perfect* fillings," and "*perfectly solid* gold fillings." I wonder if such fillings are ever made? C. F. M.

(18.) Cannot somebody give us a little treatise on fixtures for retaining teeth in their new positions after regulating? The process is nearly useless without this, and yet the books almost ignore it. D.

(19.) In the penetration of tooth structure does the germ precede the acid, or vice-versa? This was one of the interesting questions at the last meeting of the Mass. Den. Soc.—but no satisfactory conclusion was arrived at.

I enclose you an anomaly in the shape of a third bicuspid which occupied the place of the second permanent molar (left superior). All of the other teeth were regular and perfect. This one had been exceedingly sore and troublesome for a long time, and the patient (a physician) would consent to no treatment other than extraction. C. W. STARBUCK.

Answers.—Reply to F. S. (No. 11).

FORMULA FOR GOLD SOLDER.

18 K. gold plate scraps, 9 pwts.

Brass wire, . . . 3 "

Silver, . . . 1 "

Roll thin. This will flow smoothly and evenly if the piece is well heated before the blow-pipe is used. It will leave so good a finish that little dressing down will be needed. R. N. LAWRENCE, Lincoln, Ill.

In response to M. W. L. (No. 13), permit one of your readers to state, that careful observation during a practice of thirty years has led to the conclusion that tobacco neither benefits nor injures the teeth. It, however, gives the breath a decidedly unpleasant taint, and when used immoderately seems to permeate the entire human structure. W. D.

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LISTERINE

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Reliable, Safe and Pleasant.

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DENTAL PRACTICE.

The absolute safety of Listerine, combined with its agreeable properties, gives it unquestionable superiority **for oral diseases and internal use** over all other antiseptics, notably those whose deadly nature requires their administration only under the highest dilution, and where commercial differences, the slightest mishap or idiosyncrasies may bring disaster. The formula of Listerine, no less than the uniformly good practical results following its use, sustains the claim that it possesses something more than mere mechanical germicidal properties.

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- ☞ Used by **Inhalation** and **Internally** in advanced stages of respiratory diseases, it promptly suppresses the gangrenous odor and butyric fermentation of the diseased bronchial surfaces, and thus checks blood poisoning.
- ☞ For cleansing and in operations the dilution has been varied from one to twenty parts water and one part **Listerine**, according to conditions and taste.
- ☞ Note its value as a menstrum, its miscibility with glycerine, etc.

The value of Listerine has been thoroughly determined by very many of the Dental Profession, and a pamphlet embodying its Formula and Reports from the following and many other well-known dentists will be forwarded gratis upon request and the mention of this journal.

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 C. W. SPALDING, M. D., D. D. S., St. Louis.
 HENRY S. CHASE, M. D., St. Louis.
 J. TAFT, M. D., D. D. S., Cincinnati.
 GEORGE WATT, M. D., D. D. S., Xenia, O.
 H. A. SMITH, M. D., D. D. S., Cincinnati.
 A. O. RAWLS, D. D. S., Lexington, Ky.
 W. C. WARDLAW, D. D. S., Augusta, Ga.
 J. B. PATRICK, D. D. S., Charleston, S. C.
 T. W. BROPHY, M. D., D. D. S., Chicago.

E. T. DARBY, M. D., D. D. S., Philadelphia.
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 JAS. TRUMAN, D. D. S., Philadelphia.
 T. H. CHANDLER, D. M. D., Boston.
 THOS. FILLEBROWN, D. M. D., Portland.
 FRANK ABBOTT, M. D., New York.
 N. W. KINGSLEY, M. D., D. D. S., New York.
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 For sale by Dental Dealers everywhere. Send for price list.

To the Dental Profession.

GENTLEMEN :

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

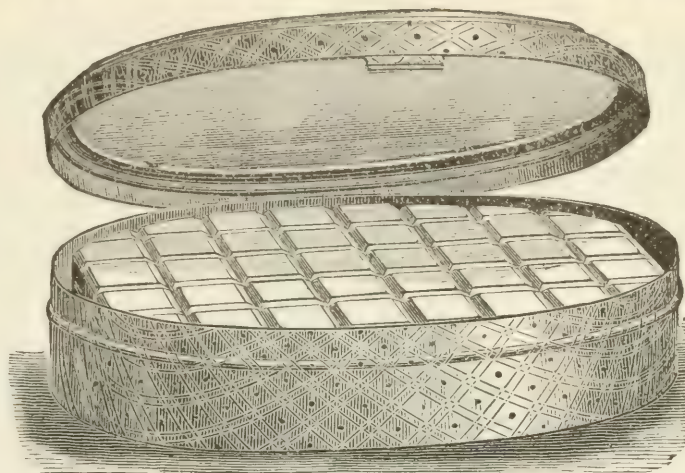
I. W. LYON, D.D.S.,

61 CEDAR ST., NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

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PRICE 50 CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

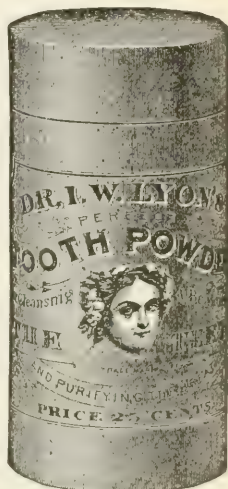
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ENAMELLED METAL BOX
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This Powder is carefully prepared by an experienced dentist, familiarized by practice with the wants of the teeth. It is absolutely pure and free from acid, grit, or other hurtful substances, and is highly recommended by the most eminent men in the profession. It gives a *delightfully refreshing sensation* in the mouth, strengthening and healing the gums, and imparting a fragrance to the breath which is very agreeable.

Put up in an enamelled metal box with sprinkler top, free from the mishaps incident to glass or wood, and very convenient for use, especially in traveling.



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Cohesive, Malleable and White.

The most honest objection heretofore made to amalgam is that it turns black and is liable to stain, disfigure and even destroy tooth structure. *This need not be:* for there are metals which, combined and amalgamated with *chemically pure mercury*, do not oxidize or tarnish, even under the most adverse circumstances. And, if previous to use, it has been ascertained that the salts (oxides) of the metals are not soluble in the menstium circulating in the tooth they will not, *cannot* affect the tooth structure.



Heat expands metallic substances. When an alloy has been amalgamated in the palm of the hand the operator will observe that heat is evolved. Now, if this is allowed to depart (said Dr. Wheldon Foster, of Baltimore, in criticism of an essay by us), if this heat is allowed to depart previous to its introduction into the cavity, it will not then contract; for crystallization at low temperature is not a process of contraction. A familiar example is the freezing of water and the consequent bulging and bursting of the containing vessel or pipe.

The following named gentlemen endorse it, and we use their names by permission:

| | |
|---------------------------------------|--|
| Dr. JOHN B. RICH,.....NEW YORK. | Dr. E. PARMLEY BROWN,....FLUSHING, L. I. |
| Dr. W. D. TENISON,....." " | Dr. J. BOND LITIG,.....NEW YORK. |
| Dr. C. S. STOCKTON,.....NEWARK, N. J. | Dr. WM. F. DAVENPORT,....." " |

And many other prominent Dentists.

When amalgamating this alloy the best results are obtained when the minimum amount of Mercury is used, 2 gr. of Mercury to 6 gr. of Alloy.

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Oliver B. Dawson

NEW YORK, July 16, 1883.
DR. OLIVER B. DAWSON, DEAR SIR:--I have received a large number of letters of inquiry in relation to your White Alloy. These letters remain unanswered for the reason that I have not had the time to reply to them. But it would give me great pleasure to express in some way, the satisfaction I have experienced in the use of the Amalgam made with it. In the proportions in which I use it, one-fourth Mercury to three-fourths Alloy, it produces the best plastic filling I have ever constructed. Becoming very hard and tough, it is susceptible of receiving a high polish, and does not shrink under severe tests. In color it is a very light grey, which does not change in the mouth. Possessing, as it certainly does, in an eminent degree, the above valuable qualities, I consider it the best alloy I have ever used.

Very respectfully,

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THE
Independent Practitioner.

VOL. V.

SEPTEMBER, 1884.

No. 9.

Original Communications.

LECTURE ON "PERICEMENTITIS" BEFORE THE CENTRAL
DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

BY FRANK ABBOTT, M. D.

Mr. President and Gentlemen:

I suppose you are all aware that at this season of the year, particularly, we are all very busy, consequently it has been impossible for me to write out what I expect to say to you.

Pericementitis, the subject upon which I am to speak this evening, is so often met with, and sometimes so very difficult to treat, that it becomes a matter of great importance to us as to what will assist in removing or allaying the disturbance. It requires, on the part of the practitioner, a full knowledge of pathology and therapeutics in order to diagnose and treat it successfully. It is inflammation of the pericementum (periosteum) which surrounds the root of the tooth, as it stands in the alveolus. There is probably no disease which gives so much annoyance to the dentist, and to the patient so much trouble, as this. We are asked, "Cannot something be done to relieve this severe soreness of my teeth?" Not only is the patient in a condition of pain and distress, but the teeth are sore to the touch; he is unable to masticate upon them with any degree of comfort. Chronic pericementitis is a condition that may be present, it is true, and the patient really not be

aware of it, nor can it be detected by percussion with an instrument upon the tooth, nor by forcing it back and forth with the thumb and finger, still some such remote organ as the eye or ear may be effected. It is not an uncommon thing for a persistent facial neuralgia to develop, which may baffle the skill of the most astute of general practitioners of medicine, or an affection of the eye or ear which does not yield to treatment at the hands of oculists or aurists.

In order that we may understand more clearly this pathological condition, it perhaps would be well for us first to comprehend the tooth physiologically. It is necessary for us to know how the tooth is built up, in order to understand the disease, or the peculiar conditions, which we call *pericementitis*.

The pulp originally occupied the entire portion of the tooth now dentine. By the process of calcification the row of odontoblasts that was around the outer edge of this pulp soon became filled with lime-salts, and was converted into what I term dentine cells; immediately inside of these formed dentine cells another row of odontoblasts is arranged, and so on really as long as the tooth remains in the jaw and is alive. The crown of the tooth is first formed, and subsequently the root.

In the formation of dentine, of course, the reticulum, which was living, still remains alive after the lime-salts are deposited. The dentinal fiber stops before reaching the enamel, and is either lost in a granular mass, or divided into two or three branches, in order to accommodate itself to a proper supply of the finer structure of the enamel. The enamel prisms are undoubtedly pierced with very minute fibers of living matter, as shown in the diagram, but as yet they have not been positively identified.

This portion of the tooth has, of course, a covering which is called enamel, and is formed by what is known as the enamel organ. Extending over the entire crown is an epithelial covering known as "*Nasmyth's membrane*." This thin membrane, by the friction of mastication and cleansing, soon becomes worn off, and the finely polished enamel is brought to view. This portion of the tooth is nourished entirely from the pulp, not only the dentine, but the

enamel as well. When we come to the formation of the root, the enamel and the crown portion of the dentine having previously been formed, another element enters into the construction, viz., the cementum. This, in its construction, is the same as ordinary compact bone. It is the product of the pericementum, is attached to it and nourished by it.

The best analysis we have of the tooth is that the enamel possesses $3\frac{1}{2}$ parts of organic material, and $96\frac{1}{2}$ parts inorganic. In the dentine we have 28 parts of organic and 72 of inorganic; and in the cementum again we have 33 parts of organic and 67 inorganic. I give these figures, not claiming that they are always the same. Undoubtedly we would arrive at a different analysis in each instance, finding a varying amount of the different materials of which a tooth is composed. The arrangement of the fibers of connective tissue of the pericementum is an interesting feature to the dental student. If you will examine this diagram carefully, you will observe that the ends of these fibers attached to the socket are toward the gum, while the ends attached to the root point toward its end, so that when the teeth are bitten upon, the fibers stretch and allow of a slight movement of the tooth. When the pressure is removed they contract again, and the tooth assumes its suspended position. Were the teeth placed in the jaws solidly, many more would be broken than now are. In enumerating the different causes of *pericementitis*, I presume I shall omit many, but I will endeavor to give the principal ones. They are as follows: Any organic disturbance of the dentine or cement; direct irritation of the pericementum; putrefaction of the dead pulp in the canal, or any portion that is left when extirpation has been attempted; putrefaction of the organic portion of the dentine; mercurial poisoning; uterine irritation during gestation or the menstrual period, and *exostosis*.

The usual organic disturbance of the dentine or cement usually involves caries. We remove this and seal the cavity, and thus prevent further irritation of the living portion of the organ, and generally no further trouble is experienced.

It is often the case, however, that the living tooth, when the neck

becomes denuded, will cause the patient severe neuralgic pains and slight pericementitis. This may be relieved by the use of an alkaline solution, such as bi-carbonate of soda in water.

When the tooth is decayed to the pulp, we have direct irritation of that organ. The common practice is to cap such an exposed pulp. I am afraid, however, that it is not as common as it ought to be. From what I see and hear, I fear that a great many men are too reckless in sacrificing the life of the pulps of teeth. Its death is productive of so much trouble and distress, so many alveolar abscesses, so many sleepless nights, and sometimes even the death of the patient, that it becomes a matter of great importance to us and to our patients. Besides, the preservation of the natural color of the tooth is of paramount importance, particularly if the tooth be in the anterior portion of the mouth. That bluish-grey or greyish-brown color which a pulpless tooth assumes, is anything but pleasant to look upon. This discoloration is indicative of the putrefaction of the organic portion of the dentine, to which I shall refer further on. That the operation of capping the exposed pulp of a tooth is not always attended with the desired result, I am well aware; but should the first attempt fail, the capping material should be removed and another trial made; yes, two, and even more, provided the patient will submit to the long-continued experimentation. If a portion of the pulp unfortunately dies, it should be amputated, and the remainder preserved, if possible, as a portion of live pulp in a tooth will preserve its natural color. I am aware that this kind of work is very trying to the nerves of the dentist as well as the patient, and perhaps it is not to be wondered at that sometimes endurance yields, and the pulp is devitalized and its removal attempted so frequently.

I had a patient to-day, whose left upper central incisor was pulpless, and had assumed the characteristic grey color. The right central had some months since exhibited signs of chronic pericementitis, but its color was good. Upon removing an imperfect filling which it contained, I found that the carious process had penetrated to the pulp, and a portion of it was dead. I removed that portion and made a soothing application to the remaining live portion, in the hope of preserving it.

The preservation of exposed pulps I consider one of the greatest achievements in modern dental surgery.

PUTREFACTIVE IRRITATION.

The general impression is that the cause of all the distress which we call *pericementitis* is due to the putrefaction of the dead pulp when left in a tooth. But how shall we account for this condition when it occurs after the treatment of such teeth by men who are positive that they have removed every particle of dead tissue? The fact is, that in the hands of our most careful dentists a portion of dead pulp is left in the canals of about one-half of the cases treated. For instance, how much credit would you put in the statement of any man who would tell you that he could, with certainty, always remove the entire pulp from the first bicuspid, or either of the molars in the upper jaw, or from either of the molars in the lower jaw?

It matters very little whether you leave the pulp entire, or a piece as large as the point of a needle in the canal; if that putrefies there is danger, although the initial point is not as threatening. Even though the pulp is removed from the tooth entire, and the root is sealed up as tightly as possible, there is still twenty-eight per cent. of the dentine dead and undergoing slight putrefaction, unless every particle of air is excluded, which is seldom, if ever, done. Now if the patient takes a severe cold by sitting in a draft, or should bite upon such a tooth a little severely at any time, producing sufficient irritation to cause a determination of blood to the part, is it at all unreasonable to suppose that the living portion of the cementum, coming as it does in direct contact with this putrefying portion of the dentine, will absorb an excessive amount of it, producing an irritation which is directly conveyed to the *pericementum*? I have no doubt that thousands of cases of *pericementitis* which have puzzled the brain of many a good and faithful dental surgeon may be accounted for in this manner.

Many methods are resorted to, and many materials used to relieve this painful condition, among which may be mentioned counter-irritants, such as a small mustard or capsicum plaster, the applica-

tion of leeches, of cantharidal collodion, aconite and iodine, or a piece of hot fig or raisin. I have obtained more immediate and lasting relief from the use of the two latter than from any other remedies I have ever tried. The aconite used in this mixture is a saturated tincture, and made by only one man, so far as I know—T. J. MacMahan, 142 Sixth Avenue, New York. This, mixed with an equal amount of tr. iodine, is used. It may be painted on the gum over the affected tooth, every three hours, until the inflammation is checked. Recently, however, I have been in the habit of recommending the heating of the inside of a raisin from which the seeds have been removed, as hot as it can be borne, and placing it on the gum over the root, and repeating this every half hour. In this manner I have reduced the inflammation in many very obstinate cases. I have used the aconite and iodine for fifteen years or more, it very seldom failing to give relief if applied before suppuration takes place.

DIRECT IRRITATION OF THE PERICEMENTUM ITSELF.

This takes place in several different ways. Perhaps the most prolific cause, however, is that of the collection of tartar around the roots under the gums. That brings me to a point which is very interesting. It is a question you have, doubtless, asked yourselves dozens of times: Where does this calcareous deposit come from? You all very well know that the function of the pericementum (periosteum) under irritation is to secrete and deposit lime-salts; for example, in the repair of fracture, and the reproduction of bone. As soon as the slightest deposit takes place under the free margin of the gum, or an inflammation of the gum from any cause deprives the part of its proper nourishment, the tissue becomes detached from the neck of the tooth, thus opening a pocket for the reception of foreign substances, which may come in contact with the pericementum and produce an irritation which shall cause a deposition or outpouring of lime-salts, and these readily attach themselves to the irregular surface of the cementum. This is the condition when that excessive ulceration takes place that is known as "pyorrhea alveolaris."

This is not an original idea of mine, but should be credited, I believe, to Dr. Niles, of Boston.

Now, the removal of this material from around the root of the tooth is in many instances easy, and all that is necessary to relieve the pericemental disturbance. Like many of my brother practitioners, I was in the habit, until within the past two years, of using antiseptics, stimulants and astringents in all such cases, but for the last-named period I have depended in almost every instance upon the thorough removal of all deposit from the roots, and trust nature to restore the parts to health. I prescribe for the patient a saturated solution of chlorate of potash in cold water, and direct him to rinse the mouth with it every hour, if a severely inflamed case; three or four times a day if the attack be mild. The success I meet with in this treatment warrants me in recommending its trial.

TRAUMATIC INJURIES.

We produce pericementitis by moving teeth about for the purpose of obtaining room to fill, and also from long and too severe malleting upon dead teeth. In very large operations it would perhaps be well to adopt the new mode of putting in filling by the Herbst method; rubbing them in with a small burnisher. In many cases where large operations are to be performed in molar teeth, it is advisable to use amalgam or some cement, rather than risk hard and continued labor upon gold fillings. Eisfelder's cement, a German preparation, is the most perfect and hardest cement for the teeth I have ever used. You may not be able to get it here, but can order it from Germany. Some of these cements may be used to advantage, rather than gold filling, in discolored teeth, or where very much of the crown of a molar or bicuspid has been broken away. By placing a small layer of gutta percha at the cervical portion, large approximate cavities may be successfully filled with it.

MERCURIAL POISONING.

Salivation very frequently, if not always, produces pericementitis. The organic principle of saliva (ptyaline) acts as a poison to the mucous membrane of the mouth, when the saliva is secreted excessively. This produces an inflammation of the gum around the teeth,

by which its proper nourishment is cut off, and its detachment from the necks of the teeth is the consequence. This inflammation extends to the pericementum entire, and the loosening, and perhaps loss, of the teeth is the result. This is often the beginning of pyorrhea alveolaris.

In mercurial poisoning, the treatment consists in keeping the teeth as clean as possible, and rinsing the mouth every fifteen minutes or half-hour with a solution of chlorate of potash in cold water, and touching the gums with tincture of iodine, provided the inflammation does not subside readily, I believe this to be ample treatment to relieve disturbances of this kind.

FUNCTIONAL IRRITATION.

Uterine irritation during gestation or the menstrual period may produce pericementitis, either in a living or so-called dead tooth. A living tooth may be carious, or denuded of its natural covering at the neck. It is no uncommon thing for ladies to suffer severely at such times; as they recover from that the pericementitis subsides. When treatment is, however, demanded, the painting of the gum once with the aconite and iodine preparation will usually be sufficient to relieve the patient, provided the tooth is a pulpless one. This relief may be permanent, or the inflammation may return again within twenty-four hours, a week, or at any subsequent time. If the teeth be alive and carious, fill with gutta percha temporarily. If the necks of the teeth are exposed and irritated, use the soda solution.

HYPERTROPHIES.

Exostosis is known as a condition of formative irritability, i. e., the pericementum is in a low, chronic state of inflammation, which results in an increase in size or thickness. As the cementum increases in thickness the surrounding alveolus must of necessity be absorbed. When pericementitis is developed it is in consequence of this absorption going on more slowly than the tumor grows. Pressure upon the pericementum, and consequent inflammation, is the result. When a diagnosis of exostosis is made, the only relief consists in extracting the tooth.

THE POSSIBILITIES OF HEREDITARY TRANSMISSIONS OF
ORAL LESIONS.

BY W. C. STARBUCK, D. D. S.

READ AT THE NINETEENTH ANNUAL MEETING OF THE MASSACHUSETTS
DENTAL SOCIETY, BOSTON, JUNE 5TH AND 6TH, 1884.

For years it has been my practice, in many cases, to remove the first permanent molar for the purpose of correcting a crowded and irregular condition of the teeth, and to prevent, as far as possible, approximal decay. I am well aware that there are many who most decidedly object to such a proceeding; but whatever may have been the experience of others in similar cases, I know from my own observations that great benefits have resulted by the timely removal of such teeth as in my judgment have seemed expedient, in order to obtain the best relief for existing conditions. This is a subject upon which a great deal has been and can be said, and which has not only agitated the minds of many of our best operators, but parties outside of the profession have expressed themselves as against the practice. I will mention one instance.

In looking over a book published a few years ago, entitled "The Life History of Our Planet," by William D. Gunning, I made the following extract, thinking that some time I might have occasion to refer to it:—

"By his *arm* man holds dominion over the world. Through his *mouth*, in a large sense, he is and was created.

"The dentist by thrusting his forceps in our mouths is fast making us over into a new race, a race which one day may take the name already coined for it, the name of 'lantern jawed.' It would seem our national malady is bad teeth. Examinations were made in the primary schools of a Boston suburb, which showed that out of three hundred boys and girls under the age of twelve, only fifteen had perfectly sound teeth! The dentist begins on little mouths, and his work will end by making a race with little mouths. If any one will examine a museum of skeleton heads collected years ago, as that of Dr. Morton, of Philadelphia, he will see that, generally, where teeth have been extracted the pits have not closed up. The

explanation is that, in general, the teeth have been lost later in life. If now he were to examine such a museum as might be made out of living heads he would find that, generally, more teeth have been lost, and more of the alveola, or pits, had been closed up. When the jaw loses a tooth and is so young and vital as to mend the chasm, finding itself too large for its uses, it contracts. Suppose that early in life teeth have been extracted. The jaw, being too large for its needs, would tend to contract and lose its roundness of outline. It would become more triangular and pointed. It would assume the form meant to be described by that ill-chosen word, 'lantern jaw.'

"The contraction of the jaw becomes hereditary. It is the concurrent testimony of American dentists that our teeth, when sound and in their places, crowd each other for room. The jaw is too small. If nature meant it to carry sixteen teeth she has not the intelligence to measure space against number. And here the dentist comes to help her again. He pulls out one or more of her sound teeth to give room to the others—and to let her contract the jaw a little more."

The statement of Mr. Gunning that "the contraction of the jaw becomes hereditary," led me to see what some of the authorities had to say upon the subject. Ribot, in his work on Heredity says, "that nothing is more undisputed than the heredity of the form, size and anomalies of the osseous system; and universal, every-day experience, proves the heredity of all the proportions of the cranium, thorax, pelvis, vertebral column, and the smallest bones of the skeleton." Even the heredity of the excess or defect in the number of the teeth has been ascertained. (Lucas.)

I have among my patients several, where this peculiarity of defect in the number of teeth has been hereditarily transmitted. There is no way of proving, however, that these defects were owing to any external interference originally.

Anomalies accidentally acquired, according to Ribot, are transmissible, as are also artificial deformities.

Three tribes in Peru had each their own peculiar mode of deforming the heads of their children—and this deformity has since

remained. It is said the Esquimaux cut off the tails of the dogs they harness to their sledges; the pups are often born tailless!

In considering the question of the possible transmission of accidental deformities and lesions, I will refer to a portion of the report of the proceedings of the Ohio State Dental Society, of 1882. The subject under discussion was "What shall be done with the first permanent molars?"

A member inquired if an abnormal condition of the mouth, produced by improper interference (meaning the extraction of these teeth), might be transmitted to offspring.

Dr. Taft replied that it had been claimed, with a good deal of plausibility, that at least some accidental deformities had been thus handed down.

Then Dr. Watt read the following note, entitled "Transmission of Traumatic Lesion."

DEAR SIR: Mrs. B. when a girl about twelve years of age, had a fall, striking on a piece of broken crockeryware, which made a severe lacerated wound posteriorly and to the right of the mental process of the inferior maxillary bone, nearly penetrating the floor of the mouth. She married and became the mother of five children, all of whom have the duplication of cicatrix, and in the same place as the initial lesion possessed by the mother.

(Signed),

W. MITCHELL,

Delaware, O.

Dr. Watt remarked that he "regarded this as a very interesting item, and as dentists have much to do in causing 'traumatic lesions,' he thought it ought to be promptly and widely published, and added that if accidental deformities are ordinarily thus transmissible, we really incur heavy responsibilities in our manifold mutilations." He expresses the opinion, however, that extraction may become necessary to make room.

This is the very thing which I admit I have been doing, when necessary, for years, and in every case with the most gratifying result. I propose to show models of two mouths in illustration of the benefit of judicious extraction. One was given to me by a

Pennsylvania dentist—a model of his own mouth—where nine teeth have been extracted, eight molars, and one inferior incisor. He is a very small man, and he told me his teeth were large and in a crowded condition. It will be observed that the articulation of the remaining ones is good, and he said he had all the teeth he wanted or needed.

The other case in my own practice is that of a child, where the extraction of the first permanent molars was done in January and February, 1881, and the regulating commenced in March. Seven months after, the teeth were in position, as shown by the second model. After the regulation the appliances were removed, and there has been no apparent change of position up to the present time.

It has been said that in surgery we cut off a finger to save the others; we remove one eye to save the other. On the same principle why cannot we remove a tooth to correct an irregularity, or to save the others, without doing an incalculable injury to posterity, and without incurring the grave responsibilities referred to. We are all of us called upon daily to change the condition of things as we find them, and we should do it intelligently and conscientiously, according to our best light. In searching for justification for the course I have pursued in the past, and for encouragement in the future, I find the opinion expressed that accidental deformities are not usually transmitted, and that it takes “thousands of years” to change type. Ribot says that “deviations from a type, after having subsisted for generations, return to the normal state, so that many naturalists hold it as a rule that accidental modifications are *not* perpetuated.” As far as I have been able to ascertain, neither Darwin nor Huxley has recorded any cases where the lesions of the oral cavity have been hereditarily transmitted. I shall therefore feel warranted in going on as before—not in performing “manifold mutilations”—but in doing all in my power to assist nature in her developments, relieving suffering humanity as circumstances arise, and leave the generations to come to combat with conditions as they find them; and, in the words of Marcus Antoninus, “If any man is able to convince me and show me that I do not think or act

right, I will gladly change, for I seek the truth by which no man was ever injured. But he is injured who abides in his error and ignorance."

EXPOSED PULPS.

BY J. D. PATTERSON, D. D. S., KANSAS CITY, MO.

READ AT THE JOINT MEETING OF THE KANSAS AND NEBRASKA ASSOCIATIONS,
MAY 4TH, 1884.

What to do with the exposed pulp has long been one of the chief questions to the dentist. The mode of treatment has undergone many changes. The correct method promulgated one year has been cast aside the year following, and while the advance guard has tested and discarded many plans, others are still using the old treatment that has been found worse than useless, showing that no one method has been found worthy of exclusive employment by all operators.

There are many barriers in the way of obtaining correct statistics of pulp capping. The cases upon which judgment chiefly rests are those where so much trouble has subsequently arisen that surgical interference has been found necessary. The exact condition of those that, after a certain time, do not cause uneasiness and are called successful, we do not surely know, for we are not justified in disturbing them, nor are we positive as to how long they will remain useful and comfortable. The pulp may be mummified, ossified, shriveled, or in nearly a normal state, so that it is difficult to obtain statistics that are not fallible. However, we can say that success in capping must depend upon circumstances of health, temperament, constitution, and especially upon local features of the exposure, which may be varied without limit. Every case demands individual consideration; and prescribed plans, which are often glibly laid down for absolute preservation of the whole class of exposed pulps, are extremely liable to prove unsatisfactory. The outcome shows this: Take two cases; alike, so far as a common observation extends, give them the same treatment, and the one will prove a success, the other a failure. The probable reason is not found in different manipulation, but because each case had different possibilities at the time treatment

was given. We cannot apply an unerring rule to all cases, but may give the results of study and experience. After a pulp has undergone considerable irritation, inflammation and partial suppuration in the usual course of decay any attempt at pulp protection will be followed, not by the pulp regaining or continuing its functions, but by its obliteration as a pulp and its final entire destruction. Pain and inflammation may have been present to a considerable degree, and yet no doubt the pulp may be saved; but if the destruction of some portion of pulp tissue has occurred, the chances for successful capping are gone. Of course capping may be done with seeming success, but the increased vascular action which is excited for protection of pulp substance seldom stops short of pulp ossification, exostosis, and its following ills, if the pulp is not soon destroyed by suppuration. We are often pleased to term this ossification a secondary dentine, or osteo-dentine, when it is a heteromorphous mass of bone formation, which destroys the pulp and its functions. We find this condition often present when pulp treatment has been delayed until successive seasons of pain and inflammation have occurred, when if we endeavor to extirpate, we find it a difficult matter, as the entrance to the pulp chamber is blocked with nodules of this deposit. If the process stopped when a protection was afforded it would be well, but it does not. The accretion gains until the whole chamber is invaded, or a greater part of it. Very much has been said about saving a portion of a pulp, even if the major part of it is lost. The excising of these organs and the protection of the pulp in one fang of a tooth with two or three roots, when in the other fangs it is entirely removed, is spoken of by some as a common operation in their practice, and a sure success. No doubt these operations have been performed with transient good, but it is like the operation of replanting teeth; it will not do to tie to. The tyro at this business will feel certain that he has made a successful operation, but in time his house will come tumbling about his ears. The fangs of his replanted tooth will be eaten up as grubs eat a succulent root, and his remnant of a pulp will object to living in its decapitated state. We are told that nerves in various parts of the body are severed and afterward reunite. So they do, undoubtedly,

but when this fact is instanced to show with what impunity the tooth pulps may be handled, we object to the illustration. The nerve and vessels confined within a tooth, and receiving nutrition through the minute opening at the apex, are in a far different condition from those traversing tissues and receiving health from every direction. The protection of pulps that have lost part of their substance will, I believe, ever be but an experiment, with the odds against such success as ought to justify the practice. In all these cases I believe the proper practice to be extirpation by the most approved methods. We often resort to capping when reason and experience say extirpate, solely because of the pain often necessary in nerve destruction. Many times little pain is occasioned, but generally, as you are aware, "a howling pain," to quote another, sends the patient back to you. Sedatives may be useful in allaying the irritation, but this requires time which is not always at our disposal. Before disease has progressed so far as to necessitate extirpation, we have exposed pulps which experience and history tell us can almost invariably be made to continue their normal functions. These exposures may possibly have caused pain through thermal changes or other irritations, of transient character, passing away and leaving the integrity of the pulp undisturbed. In such cases we have a possible chance for success. The first difficulty is in ascertaining the exact condition. The history of the case is often misleading, and the best plan is, after drying the cavity, to insert a non-irritant stopping, and after it shall have remained for a suitable time, to remove it for careful examination. Any heroic means must be avoided, for if the pulp is free from congestion, any violent handling, such as puncturing or lacerating, is prejudicial to success.

The process of carefully disinfecting must come next, and whether performed with carbolyzed water, eucalyptus oil, salicylic acid, listerine, alcohol, or any of the other standard remedies, it should be done with those of such strength and temperature as to be grateful to the sensitive pulp. The common practice of using ice-cold applications is hurtful, cruel, and unnecessary. The medicine, with a little warming, will penetrate better and be more active. After

disinfecting and thoroughly drying, there seems to me nothing superior to fine silk adhesive plaster, or sandarach varnish, for the first covering of the pulp. After drying, which is speedily accomplished, another piece of plaster or coating of varnish can be given, until thorough protection is afforded. Upon this can be introduced the foundation filling of cement, as usual. This capping is introduced without the slightest pressure upon the pulp; it hermetically seals the exposure, and seems to be a perfect protection without irritation. If the sandarach covering is first used, it may be reinforced with a layer of the silk adhesive plaster before introducing the cement filling for foundation.

If pulp exposure has gone a step further, to the verge of suppuration, the exposure may first be covered with a thick paste of the oxide of zinc and creosote. In all cases, if gold is to be used, it should be inserted at another sitting. There is no safety in finishing at the same operation, on account of liability of disturbing the not yet hardened cement.

If after-trouble ensues, that will not readily yield to treatment, the filling and capping must be removed. If the exposure and chances for success have been wrongly judged, the sooner a radical correction is made the better for patient and operator.

There is still another quite distinct class of cases, where decay has reached the pulp and yet no exposure has occurred. The inorganic components of the tooth are gone, dissolved by the acids, and the scavengers have not yet removed the organic part, which occupies its original position and saves the pulps from actual exposure. We often find pain has occurred here also, and sometimes the pulp is beyond help; but this is rare, and without actual exposure the operation of pulp protection results in certain success. Formerly the remaining covering was removed before proceeding to cap, but this suicidal practice has been abandoned, and every care is taken not to expose by removing the layer of the organic part of dentine, but to carefully disinfect and proceed as before stated. This natural capping, properly treated, will remain unchanged for an indefinite time.

My object in this essay has been to advise—

1st. The extirpation of the pulp when disease has progressed so

as to destroy a portion of its substance, instead of endeavoring to preserve what remained.

2d. In capping, to use the non-irritating treatment.

3d. To especially recommend the silk adhesive plaster and sandarach varnish for first covering of the exposed or nearly exposed pulps.

In all, I have spoken from careful observation and experience; spoken guardedly because I know how fallible individual experience may be. The methods advised are not new, but yet they are not those generally practiced at the present day.

DENTAL EDUCATION ONCE MORE.

The three articles in the August number of the *INDEPENDENT PRACTITIONER*, as well as the one of the June number, are so thoroughly disingenuous that it is a difficult matter for men whose desire and practice it is to act openly and honestly to answer them properly.

The authors of those articles do not or will not understand the plain statement made by us in the July number of that journal. The character of the charges contained in the first article in the June number, and reiterated directly or indirectly in the August number of the *INDEPENDENT PRACTITIONER*, has been vague. The most specific charge was contained in the first article by Dr. Hopkinson, as follows: "Certain irregularities practiced by the 'present faculty,' in direct opposition to the law as it appears in her charter, and according to the terms of graduation published in the forty-fourth annual catalogue."

As to this we need only quote the following provisions of the charter, a copy of which in our possession is certified to as correct by Dr. F. J. S. Gorgas, as also is the fact that the charter was granted in 1840 for thirty years, and in 1870 renewed by the State of Maryland for another thirty years.

"Sec. 8. *And be it enacted*, that R. S. Stewart " (and others

named) "be appointed a board of visitors, to be styled the Board of Visitors of the Baltimore College of Dental Surgery, who shall be empowered to examine into the state and condition of the Institution, and see that the requirements of this charter are fulfilled, five constituting a quorum; they shall meet at least once in each year, to fill vacancies that may occur in their body, appoint such officers as may be necessary to the discharge of their own duties, and attend to any other business connected with their office as visitors and supervisors of the Institution.

"Sec. 9. *And be it enacted*, that the said Professors" (provided for in the previous section) "shall have full power to confer on any student who shall have attended all the lectures in said college for two terms, and others, after an examination by the Professors [who] shall have been found worthy the degree of Doctor of Dental Surgery, and the said Professors shall have power and are hereby directed to accept evidence from any student of his having attended lectures in any respectable dental or medical school for an equal period of time, and receive the same as equivalent to his having attended one of the terms herein mentioned."

The practice of graduation on examination alone, in accordance with Section 9, "has not been confined to the last fifteen years, but has extended over a period commencing with the organization of the school." (See Gorgas, p. 418.)

Verily, the young man, to use his own language, "comes forward" too much, and "stands back" too little. Especially does he do so when he names the case of "George Horatio Jones, of England, who received his diploma, so says 'dame rumor,' by proxy, and, of course, *in absentia*." Why, bless his ignorant soul, the delivery and reception of a diploma by proxy, which is done under certain circumstances by all educational institutions, is *not* granting the degree *in absentia*; and even if it were, that whole case was managed and pushed through by Dr. Gorgas, then Dean of the Baltimore College of Dental Surgery.

We have now before us papers in Dr. Gorgas' handwriting, and signed by him, dated April 27, 1882, in which is the following:—

"RECEIPTS."

Students since March 15, 1882.

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| From | . | . | . | . | . | . |
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| " | George H. Jones (Englishman), \$135.00. | | | | | |

This sum is made up of the matriculation fee, five dollars; the tuition fee, one hundred dollars; and the diploma fee, thirty dollars. The present Dean was the only one of the faculty who opposed the graduation of G. H. Jones, and when elected to succeed Dr. Gorgas could do no less than carry out his contracts.

And this brings Dr. Gorgas on the stage. He says "the author of the reply must have had a vivid imagination when he inferred as the facts of these cases could only have been known to the Dean of the Dental Department of the University of Maryland, hence the latter had some part in bringing the charges. For his enlightenment it is only necessary to state that the facts of these cases were known throughout the entire country long before Dr. Hopkinson's article appeared."

And pray, from what other source than the Dean, who alone was originally in possession of these facts, could this knowledge have come both to Dr. Hopkinson and "the entire country?" The statements of Dr. Gorgas and Dr. Hopkinson could not be so nearly the same if they had not all come from the same source.

And he talks about the "altogether unprovoked attack" on the Dental Department of the University of Maryland, when he knows that the two dental members of the Faculty of that Department have for more than two years been circulating falsehoods about the Baltimore College of Dental Surgery.

Denying that our "reply" was "abusive of the University," we pronounce his "simple statement of facts," pp. 416-420, to be a tissue of misstatements, as may be proven by his own correspondence and that of Dr. J. G. Palmer, as well as by the testimony of the

gentlemen whose names have been so improperly and wrongfully brought before the public, and who, as we believe, are gentlemen of honor and veracity. With this belief we will leave the questions of personal veracity to be settled by those interested, promising to give all the aid in our power to sustain the truth.

As to Dr. Harris and his article, we dismiss both in much shorter order than he was dismissed from the faculty of the Baltimore College of Dental Surgery, and for the same reasons. We simply tell him to head the affidavit which we published in the July number of the *INDEPENDENT PRACTITIONER* with "Clinton, Sampson Co., North Carolina," and fill the blank at the end with the name "Frank Boyette," and he will have both name and locality of the affiant.

The Maryland Dental College did not die in 1879, as stated by Dr. Hopkinson in his article, and by Dr. Gorgas in letters of his which we have, any more than a woman who marries a man and takes his name dies. The two colleges were consolidated; they were married under a contract signed by their faculties, which contract is open to the inspection of the profession and the public, and which utterly disproves their assertion. At the time of this consolidation the classes in the two colleges were nearly equal, and from that time to this the classes in the Baltimore College of Dental Surgery have been about double what they were before.

But all these publications, charges, replies, replications, rejoinders and sur-rejoinders, besides being interminable, do not settle nor decide anything. Therefore we have a proposition to make to the Dean and Professors of the Dental Department of the University of Maryland, which is, that we refer this whole matter to the officers of the State Dental Societies of New York, Pennsylvania, and New Jersey, or to the Boards of Dental Examiners of those States, who shall appoint from themselves or from the profession in those States a committee of three, or five, to come to Baltimore and hear all the testimony in the matter, giving both sides a fair and impartial hearing. That this committee shall publish the testimony on both sides, with their conclusions thereon, in the *INDEPENDENT PRACTITIONER* and other journals, or in such other manner as they may

deem best, and that the expenses of that committee and of their publications be divided equally between and paid by the Baltimore College of Dental Surgery and the Dental Department of the University of Maryland.

JAMES B. HODGKIN, D. D. S.,

RICHARD B. WINDER, M. D., D. D. S.,

M. WHILLDIN FOSTER, M. D., D. D. S.,

J. H. COYLE, D. D. S.,

THOMAS S. LATIMER, M. D.,

JAMES E. LINDSAY, M. D.,

Governing Faculty of the Baltimore College of Dental Surgery.

Reports of Society Meetings.

MEETING OF THE FACULTIES OF THE DENTAL COLLEGES OF THE UNITED STATES.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY E. G. BETTY, D. D. S.

The conference of Dental College Faculties met at the Sturtevant House, in New York City, at 10 A. M., Monday, Aug. 4, 1884.

Prof. Foster announced the object of the meeting, and moved that Prof. C. N. Pierce act as temporary chairman.

This motion prevailed, and Prof. Pierce took the chair.

Prof. H. A. Smith was appointed to act as temporary Secretary.

Prof. Winder moved that an association be formed, and in pursuance of this a committee of three was appointed on organization, viz: Professors Truman, Taft and Winder.

A motion to admit reporters was carried.

The list of names and representatives of colleges was called for, and responses made as follows:

Baltimore Dental College, Profs. Winder and Foster.

University of Michigan, Prof. J. Taft.

University of Pennsylvania, Prof. Truman.

Philadelphia College, Prof. Garrettson.

Harvard University, Prof. Fillebrown.

Ohio College, Prof. H. A. Smith.

Boston College, Profs. Blodgett and Follett.

Chicago College, Profs. Harlan and Gardiner.

Iowa College, Prof. A. O. Hunt.

Pennsylvania College, Profs. Pierce and Leffmann.

New York College, Prof. Abbott.

University of California, }
Kansas City College, } Represented by letter.

The Committee on Organization was allowed thirty minutes to report, during which the meeting took a recess.

The committee then made the following report:

CONSTITUTION.

SECTION 1. This body shall be called the "National Association of Dental Faculties."

SEC. 2. The objects of this association shall be to promote the interests of dental education.

SEC. 3. The officers shall consist of a President, a Vice-President, a Secretary and a Treasurer, who shall be elected by ballot, and shall hold office till their successors are elected.

SEC. 4. Two-thirds of the colleges belonging to this association shall be necessary to constitute a quorum.

SEC. 5. Any contemplated change, involving the interest of the schools represented in the association, shall require one year's notice before any action is taken.

SEC. 6. Two members shall be elected, who, with the officers, shall constitute an Executive Committee, that shall have power to designate the time and place of the meeting, and make preparation for the same, and pass upon all candidates.

SEC. 7. Any reputable dental college may be represented in this body, upon submitting to the Executive Committee satisfactory

credentials, signing the constitution, conforming to the rules and regulations of this body, and paying such assessments as may be made.

Prof. Winder—Moved that the report be read, section by section, so that it could be passed upon. Carried.

The first, second and third sections were adopted as read. There was some discussion by Prof. Blodgett as to how each college should vote, whether as a unit or not; it was determined that two-thirds of the representatives should constitute a quorum, each college voting as a unit. Upon this the fourth section was adopted.

In the fifth section, after some remarks pro and con, the section was changed to read "dental schools represented in this body" as above. The section was then adopted as amended.

Section six was changed to read *three* members to be elected instead of *two*. Adopted as amended.

The seventh section, on resolution of Prof. Harlan, was amended to include a membership fee; which resolution was amended on motion of Prof. Taft, to collect funds by assessment *pro rata*. The section was adopted as amended.

Some one moved that a Membership Committee be appointed.

Prof. Foster—Said the Executive Committee had power, and was sufficient to perform this duty.

The report, as a whole, was then adopted as such.

The following colleges then signed the constitution:

Baltimore College of Dental Surgery, M. W. Foster, R. B. Winder.

Pennsylvania College of Dental Surgery, C. N. Pierce, Henry Leffmann.

Philadelphia Dental College, J. E. Garrettson.

New York College of Dentistry, Frank Abbott, J. Bond Littig.

Boston Dental College, J. A. Follett, Albert N. Blodgett.

Dental College of the University of Michigan, J. Taft.

University of Iowa, Dental Department, A. O. Hunt.

Chicago College of Dental Surgery, A. W. Harlan, Frank H. Gardiner.

Dental Department of the University of Pennsylvania, James Truman.

Ohio College of Dental Surgery, H. A. Smith.

Prof. Fillicbrown—Could not sign, as he had no authority to act for his college, but expressed hearty sympathy with the movement.

Prof. Taft—Moved that during the intervals between meetings, any college could become a member by applying to the Executive Committee, and presenting satisfactory credentials, and conforming to the rules and regulations as provided in the constitution. Carried.

The association then proceeded to the election of permanent officers, to serve the coming term, with this result:

President, C. N. Pierce; Vice-President, R. B. Winder; Secretary, H. A. Smith; Treasurer, A. W. Harlan.

The three members of the Executive Committee elected were Profs. Abbott (chairman), Truman and Taft.

Prof. Winder—Offered a resolution that after the session of 1884-85, the colleges announce in their catalogues that five years' practice will not be an equivalent for one course of lectures.

Prof. Taft—Said it was necessary to designate just how many years are required, as the resolution on this point is indefinite.

Prof. Winder—Said that his resolution was one of inquiry merely.

Prof. Truman—Moved that two full years' attendance at college be required, instead of Prof. Winder's resolution. (Applause.) Carried.

Prof. Smith—Made a motion to the effect that graduates of medicine be required to attend but one course in a dental college, provided he pass a satisfactory examination.

Prof. Abbott—Moved to amend by requiring such medical graduate to attend one *full year* in college instead of but one course, so that he may have some practical experience; the year to include the college course of lectures.

Prof. Foster—Thought the student's ability should determine the length of time.

Prof. Taft—Said that reference should be had to men of average ability, and not to the extremes as mentioned. He had had most trouble with medical graduates, because they presume upon their attainments, and do not, in consequence, work and study as they ought. The best way is to require time enough to study thoroughly.

Prof. Smith—Said the resolution is indefinite. Why not say "in the college infirmary"?

Prof. Abbott—Accepted this, and the resolution as amended was carried.

Prof. Smith's resolution, as amended by *Prof. Abbott*, was carried unanimously.

Prof. Abbott's resolution, recognizing one course of medicine as equivalent to one year's office pupilage, but requiring of such student the attendance upon two courses of dental lectures, was carried.

Prof. Harlan—Offered this paragraph as an addition: "Provided that a candidate for graduation shall have attended two regular courses of lectures in separate years." Carried unanimously.

Prof. Taft—Offered the following resolution:

Resolved, That we recommend that three years' study of dentistry be required for graduation from a dental college.

Prof. Follett—Moved to amend by substituting "require" instead of "recommend." There being no second, the amendment fell. The original resolution was then carried.

A motion of *Prof. Taft* to appoint a committee of three to consider curriculum, was carried. Profs. Taft, Truman and Winder were appointed.

Adjourned.

AFTERNOON SESSION.

Prof. Pierce taking the chair, business was resumed.

Prof. Winder—Thought it was best for the association to meet bi-annually.

Prof. Taft—Said it was best to meet next year, in order to perfect the business of this meeting.

Prof. Taft's amendment was carried.

He also moved to assess each college the sum of two dollars, to defray the necessary expenses incurred. Carried.

Bills amounting to \$15.25 were ordered paid.

Prof. Truman—Moved a reconsideration of the action taken, requiring medical graduation as a substitute for one year's course.

Profs. Winder and Taft—Were opposed to this, and on a vote being taken, the motion was lost.

Prof. Garrettson—Offered the following resolution:

Resolved, That the colleges of this association receive into the senior class only such juniors as hold certificates of having passed a satisfactory examination in the studies of the junior year; this certificate to be a pledge to any college to which they may apply, that a previous term has been properly spent in the institution whence they come.

After considerable discussion on this resolution it was referred to the Committee on Curriculum, to be brought up at Saratoga, August 5.

Adjourned.

SARATOGA, Aug. 5, 1884.

The meeting was called to order by President Pierce at 5 P. M.

The minutes of the previous meeting were adopted, with the corrections made.

Prof. Taft—Read a letter from the Dean of the Dental Department of the University of California.

Prof. Abbott—Said that a college cannot vote by proxy, as colleges must be present and sign the constitution personally by their representatives, and that the letter or proxy cannot constitute membership.

The Chair stated that the constitution provided for colleges to join in the interim, but not by proxy.

Prof. Truman—Asked if a college could not vote by proxy, after it had signed.

The Chair said that no provision had been made, and that further legislation must be had upon that point before such action could be taken.

Prof. Taft—Moved that Prof. Truman be allowed to act as proxy for Philadelphia.

The Chair stated that this could be done by common consent.

No objection was offered.

Prof. Smith—Said that Prof. Garrettson's resolution was laid on the table.

Prof. Gardiner—Said it was laid on the table before the morning adjournment, and was brought up again in the afternoon, and referred to the Committee on Curriculum.

The Chair said it could be brought up as new business.

A motion to this effect prevailed, when *Prof. Abbott* moved that it be referred to the Committee on Curriculum. Carried.

Prof. Taft—Desired its adoption, while *Prof. Truman* favored its reference to the committee.

Prof. Taft, Chairman of the Committee on Curriculum, made the following report :

PRELIMINARY EXAMINATION.

Your committee recommend that a preliminary examination be required for entrance to our dental colleges. Such requirements shall include a good English education.

In case of any student failing to pass a satisfactory preliminary examination, the other colleges of this association may be informed of the fact.

Prof. Abbott—Moved that the report be accepted. Carried.

He also said that he thought the report contemplated action a year hence, and in view of that would move that it be adopted.

Prof. Truman—Said the latter part, regarding a graded course, was a recommendation, and he could not see how some schools could change their present schedule to comply with it, and expressed his doubt about its practicability.

Prof. Darby—Said that the association could recommend the adoption to the schools, and, at any rate, it is but a transposition of studies, which does not seem to be impossible.

Prof. Foster—Said that there was a misunderstanding, as it was not intended to prevent its operation the first year. He thought it best that the Deans be notified, so that students could not go from college to college, as it is evident that one college is sufficient to determine his ability.

Prof. Hunt—Said that it is usual in institutions to accept literary degrees without examination.

Prof. Gardiner—Wanted to know if the preliminary examination was to be in writing.

The Chair said that it was not so stated.

Prof. Gardiner—Remarked that it ought to be.

Prof. Truman—Said that in his judgment the examination should be a test of general information.

Prof. Taft—In order to test the sentiment of the meeting, suggested that the resolution be amended to read "a reasonable knowledge of numbers, geography and history."

Prof. Foster—Said that was just the point where we split; we stopped just at "the English language." In some branches, as *Prof. Taft* suggested, some candidates are deficient, though they may be generally intelligent. The examining board ought to be the best judges of proficiency.

Prof. Abbott—Said that the examination ought to be in writing, and that a simple statement of a preliminary examination is enough, without specifying what the examination is to consist of.

Prof. Taft—Said that all he wanted was that all candidates be, at least, as well educated as school-boys of ten years of age. We ought, at least, to expect a little more than this.

Prof. Foster—Said that an ordinary English education comprised the studies mentioned.

Prof. Taft—Said that he meant an ordinary English education, as generally understood.

Prof. Foster—Made a motion to amend, so that it would read "ordinary English education."

Prof. Follett—Said the candidate ought to advance a little on such an education; he ought to know numbers, geography and history, but the "history" ought to be limited, as the term is very broad.

Prof. Taft—Said that it is modified by the word "reasonable" in the report.

Prof. Follett—Asked that in case a candidate failed to pass examination, would another college refuse him, and is it justice to the student?

Prof. Smith—Said that he may come back after a time and pass a satisfactory examination; better not do the student injustice, as he may be satisfactory to one college, and not another.

Prof. Follett—Thought that the clause must mean something; say, let the student study one year further, and then try again for his examination.

Prof. Foster—The object of the report is, that when applying to one college the student is found not competent, the other Deans be notified. A Dean's notification is sufficient evidence of the student's incompetency at that time, for, as he could not enter one college, neither could he any other, at that time.

Prof. Follett—Expressed the hope that the examination be, at least, partly in writing.

Prof. Darby—Said that it is possible for a student to go rapidly from one college to another, and represent himself as never having been examined, so that it is possible for us to make mistakes, because one Dean may not notify others immediately.

Prof. Foster—The examination may or may not be severe, and if one college refuses a student another one may accept him, and the onus is thrown upon it, while the other gets the honor, or, at least, assumes it.

Prof. Abbott—Said that certain days could be set apart for the preliminary examination, so as to avoid this trouble.

Prof. Truman—There is a practical difficulty about this matter. The Dean often has as much as he can do from Sept. 15th to Oct. 15th in receiving students, without making examinations; these would delay matters till away into October, and what will be done with the students in the meanwhile?

Prof. Smith—Said that we are attempting too much at this meeting: we are not ready to specify examinations. It would be better to wait until we learn what the Medical College Association has been doing. It is better to go slowly, and not adopt faulty methods.

Prof. Gardiner—Said that in a certain institution named, the college examines and keeps the papers on file just the same as in the final examination, so that they are open for inspection at any time.

Prof. Follett—What I want to know is, that if I refuse to receive a rejected man, will the other colleges do the same for mine that I reject? Otherwise, what is the use of notification?

Prof. Taft—I don't apprehend any trouble from this cause, as, in all probability, there will not be more than two or three cases of this kind in a year, and hardly that many. When the action of the College Association is known, students will prepare themselves before applying. Six or eight hours is sufficient to examine forty or fifty students with paper and pencil.

Prof. Smith—Requested the Chair to give an opinion upon the subject.

Prof. Pierce—Said that he had been interested in examining medical students for beneficiaries, in which the application of the student is in writing. They may send credentials from teachers in whose school they were engaged, then the pastor certifies to general character. These examinations number about twelve in a year. It is an impossibility to formulate certain questions, or name certain days for examination. The admission can, in many cases, be conducted by correspondence.

Prof. Smith—Said that, in his opinion, a graduate of a literary institution needs no examination, and that it is an insult to put it upon gentlemen of such attainments.

Prof. Taft—Diplomas of this kind are always accepted when coming from respectable institutions. The report may be changed to embrace this point, but it was understood.

Prof. Smith—Moved to amend, by inserting the clause "carried by common consent."

The first part of the report as amended was carried unanimously.

Prof. Taft—Then read the second section of the report.

Prof. Truman—Moved to adjourn, that they might think about the matter over night.

Prof. Foster—Did not think it sufficiently important for that.

Prof. Smith—Said he did not want to presume, but why not strike out "specification" and insert "graded course."

Adjourned to meet Aug. 6, at 4.30 P. M.

August 6, 1884.

The Chair called the meeting to order.

The reading of the minutes was dispensed with.

Prof. Abbott—Offered the following resolution:

Resolved, That we agree to adopt a graded course of instruction, and an intermediate examination, which course of instruction and examination shall be conducted as the faculties of the different colleges represented in this association may deem proper.

Prof. Truman—Moved its adoption.

Prof. Abbott—On being asked, said that he offered it as a substitute for that portion which refers to graded course, etc.

The resolution was carried unanimously.

Prof. Hunt—Wanted to get some information as to the manner of issuing certificates, and if there was any change contemplated in the manner of issuing tickets. Must the student have a certificate as evidence of examination?

Prof. Abbott—I move that all students shall have a certificate from the school he was examined in, which certificate shall be required by other colleges before they admit him.

Prof. Hunt—Suggested that the Executive Committee prepare blank certificates, to be filled up by such subjects as he has been examined in, and a plain statement as to what the examination has been.

Prof. Darby—This seems superfluous, as the certificate would always be demanded; so the matter is well able to take care of itself.

Prof. Hunt—I still insist on some uniformity in the matter.

Prof. Abbott—Said he thought the subject should be referred to a committee, to report next year.

Prof. Smith—Agreed with Prof. Darby that the thing was superfluous.

Prof. Abbott's resolution was then carried unanimously.

Prof. Tuft—Chairman of the Committee on Curriculum, submitted the accompanying report:

CURRICULUM.

We recommend that the following subjects and arrangements be adopted by the colleges of this association, viz:

1st year—Anatomy, with dissections; physiology, histology, chemistry, didactic and practical; mechanical dentistry.

2d year—Review of the junior year studies, pathology, surgery, materia medica, therapeutics and operative dentistry.

Prof. Truman—Moved that “review of junior year studies” be stricken out.

No second.

Prof. Abbott—Moved the adoption of the report as a recommendation. Carried unanimously.

Prof. Foster—Moved that a committee be appointed to confer with the National State Board of Dental Examiners, to let them know what has been done by this association.

Prof. Taft—Said that this was feasible, and he had no doubt at all but that that association will recognize the action of this association, and he thought it could not do otherwise than discriminate between the colleges of the association and other colleges.

The Chair remarked that this committee must be furnished with attested copies of the resolutions passed by this body.

The resolution was then unanimously adopted.

The Chair appointed on this committee Profs. Foster, Abbott and Hunt.

Prof. Truman—Moved that the Secretary be authorized to prepare printed copies of all the resolutions passed, and that they be sent to all schools represented in the association.

Prof. Hunt—Suggested that the official results of the meeting also be included upon the slips.

The motion was carried unanimously.

The association then adjourned, to meet again in one year, or as the Executive Committee might designate.

MODELING COMPOUND.

The following formula will make a compound quite equal to any in the market, while its expense is comparatively little. Its consistency may be varied by changing the proportions of the ingredients.

| | |
|---------------|-------------------|
| Gum Cowry, | $\frac{3}{4}$ lb. |
| Stearine, | 1 “ |
| French Chalk, | $1\frac{1}{2}$ “ |

Melt the Stearine in a zinc pan, add the Gum Cowry and mix thoroughly. Lastly, stir in the powdered chalk.

AMERICAN MEDICAL ASSOCIATION.

SECTION ON ORAL AND DENTAL SURGERY.

SESSION OF MAY 8, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY JNO. S. MARSHALL, M. D.

(Continued from page 454.)

SYNOPSIS.

SPONGE-GRAFTING, BY EDWARD C. BRIGGS, M. D., BOSTON, MASS.

The author opened his paper by referring to the history of the facts which first suggested the idea of sponge-grafting, viz: the experiments of Mr. D. J. Hamilton, lecturer on pathology in the Edinburgh School of Medicine, 1879, "On the Process of Healing," and published in the *Journal of Anatomy and Physiology*, vol. xiii. The statement was there made, after having been proved experimentally, that in a granulating surface there were new vessels formed, but that the superficial capillaries of the part were pushed upwards as granulating loops, by the action of the heart, the projection being permitted from the fact that the restraining influence of the epithelial covering had been removed. Two years later (November number *Edinburgh Medical Journal*), he published an article on "Sponge-grafting," and there states that while gathering information for the former paper, he was led to believe the process of vascularization, as seen in a granulating surface, was similar to that which occurs when a blood-clot or a fibrinous exudate is replaced by a vascular cicatricial tissue, the blood-clot or exudate acting simply as a mechanical support to the projecting capillary loops. With this idea in view he searched for some artificial substance to replace the blood-clot, and finally hit upon sponge as best filling the requirements, by being very porous, and it would thus imitate the interstices of the fibrinous net-work of a blood-clot, and being an animal tissue would, under favorable conditions, be absorbed, like cat-gut or a blood-clot.

The first experiment was with a chronic ulcer of the leg. A piece of sponge, after being prepared as will be described later, was

fitted to the ulcerated surface, and its edges tucked under the indurated margins of the ulcer, and covered with a simple antiseptic dressing and bandage. Next day, on dressing, he found the sponge partly filled with purulent discharge. The second day there was a *distinct putrefactive odor*; the sponge was washed with carbolic acid solution, and it then appeared slightly red at the thinnest parts, and the margins of the ulcer reached further in over the sponge. The third day there were points of adhesion between the sponge and granulating surface, and at one point it gave signs of beginning to dissolve. On the fifth day the thinnest parts of the sponge were growing hard, and seemed to be filled with organizing tissue, and on pricking these points they bled freely, proving that the blood-vessels had already penetrated its pores. The sponge originally fitted to the ulcer was five inches in diameter, but at the end of three months only a small piece could be seen.

This experiment proved that in such cases the sponge would act better than the blood-clot, for while the latter would have been destroyed by the putrescent condition of the wound, the sponge, from its greater resistance, did not seem to be the least affected. Since the experiments of Mr. Hamilton, surgeons all over the world have been working in this direction, and many successful cases have from time to time been reported.

These reports suggested the idea that morbid conditions of the mouth, associated with loss of the soft tissues, might likewise be benefited by sponge-grafting. In giving my experiments I will state what I then did, and not what I would now do, with the advantage of personal experience.

Case 1. Mr. N. G. B. had been annoyed for three years by a deep depression over the roots of the right superior first bicuspid, the result of a severe pericementitis, the chief annoyance being the collection of food in the depression, and the retention of the pus. It was not a simple fistula, but a cavity one-half an inch deep, and three-sixteenths of an inch in diameter. He had tried various ways to restore the lost tissue, or narrow the opening. Had created a fresh blood-clot to fill the opening, but this also failed. January 26, 1884, he fitted a piece of sponge to the cavity,

previously prepared according to the formula of Dr. Edward Borek, of St. Louis, which is as follows:

“Soak a piece of sponge for three or four days in a twenty per cent. solution of hydrochloric acid. Squeeze it dry and place it in a solution of iodoform and ether (3j to ℥j), evaporate the ether, and keep in an air-tight vessel.”

Next day, on attempting to remove the sponge, I found to my surprise resistance to my efforts, but persisting, I pulled it out, and discovered a fresh granulating surface, which bled freely. I packed the cavity with fresh sponge. The second day I again removed the sponge, and found the same resistance, and the cavity partially filled with fresh granulations. This treatment was pursued for two months; after the first week I saw the patient only twice a week.

The sponge would apparently become attached for a day or two, and then work out, and this necessitated the application of a new piece. Adhesion never became as firm as with the first piece introduced, and at no time was there any evidence that the sponge would become organized. It acted either as a stimulant or as a support to the granulations, for it accomplished what I had failed to do by any other means. The case now presents only a small fistulous opening three-sixteenths of an inch in depth.

Case 2. About April 1st, encouraged by the success of this first experiment, I undertook a second case in the person of Mr. J. B. Three years previously a separation had been made between the first and second right superior molars, for a dental operation, from which time trouble began in the gum between these teeth. While in Honolulu, a year later, the annoyance was so great that he consulted a dentist, who lanced deeply between the teeth. After the closing of the wound the tissues contracted, making the trouble worse. When I saw the patient, a year ago, there was a deep depression between the teeth, the gum sore, and bleeding freely on irritation. The annoyance was very great, and sometimes caused severe pain. Contouring the teeth was suggested, to protect the gum, but the teeth being very sensitive and the operation likely to be long and tedious, the patient declined.

Treatment was begun April 7th, and at this time the approximal surfaces of the roots were denuded to nearly two-thirds their length. The surface of the gum was wiped with deliquesced crystals of carbolic acid, and the slough removed to give a fresh, healthy surface to act upon.

The sponge for this case was prepared as follows: It was first cleansed of calcareous matter by washing in dilute aqua regia, dried and placed for twenty-four hours in a dilute solution of tincture of iodine, squeezed dry and put in a saturated aqueous solution of boracic acid, when it was ready for use.

To prevent displacement of the sponge and to protect the gum, I made a hard rubber cap to arch over the opening between the teeth, and to rest upon the gum on either side. The sponge being fitted, the inside of the rubber cap was painted with a solution of resin, and put in position. Three days after I removed the cap, syringed the parts, without removing the sponge, with a 1 to 200 solution of carbolic acid, and replaced the cap.

At the next dressing, three days later, I removed the sponge and found it attached only at one side, but the cavity at this point had already begun to fill up a little, and thinking that the sponge as prepared for the first case acted better, I returned to its use. The patient has been seen regularly twice a week, and is progressing very favorably, the cavity filling up as rapidly as could be desired.

The paper closed with several hints relative to the treatment of future cases, viz:

Be sure the parts are thoroughly cleaned. Shape the sponge accurately to the position it is to occupy, not forgetting to allow for the swelling.

Keep pressure upon the sponge for a day or two, to aid in securing its attachment. Disturb the sponge as little as possible, and simply wash away the discharge with some antiseptic fluid.

With regard to its application, he thought it would prove useful not only in such cases as he had described, but in all cases where it was desirable to reproduce soft tissues, and suggested its use in cases of pyorrhœa alveolaris, with loss of tissue about the roots of the teeth.

DISCUSSION.

Dr. Williams.—It has been my privilege to see the cases upon which Dr. Briggs operated by sponge-grafting, and I have noted the marked improvement. It is certainly new in its application to the conditions mentioned in the paper, and I think its usefulness in this direction will be very great.

Dr. Allport.—I desire to express my thanks to Dr. Briggs for the paper he has read, and I intend to try the sponge-graft on the first case that presents in which there is reasonable hope of success.

Dr. Briggs.—I am of the opinion that the sponge-graft may be successfully used in closing certain cases of cleft palate.

ILLINOIS STATE DENTAL SOCIETY.

TWENTIETH ANNUAL MEETING.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

(Continued from page 444.)

THE ORIGIN OF DEFECTIVE TOOTH STRUCTURE, KNOWN AS PITTED,
FURROWED OR CRIBRIFORM ENAMEL.

Dr. W. H. Eames read a very able and instructive paper upon this subject. He considered under two general heads the various forms of defective enamel hitherto classed as rocky, ridged, furrowed, cribriform, pitted and grooved. These formations were generally attributed to one cause—arrested development. He insisted that not to constitutional disturbances, such as measles, eruptive fevers, eclampsia or syphilis, is the defective enamel structure due, but to a defect in the formative organ.

He next called attention to the fissures or grooves in the coronal surface of molars and bicuspid, and said that they are also attributed to arrested development. He affirmed that, as Dr. Black of this Society has clearly shown, the defect is manifestly not due to a failure to coalesce, but rather results from rupture of the enamel organ at this point.

Of the second class of cases of defective enamel, continued the speaker, the "non-congenital or accidental," as was suggested in my paper of last year I believe a large number to be due to the abnormal action of the so-called absorption organ. Is it not possible that, having performed their work of removing the roots of the temporary teeth and the alveoli, they continue to act and remove the enamel cuticle and dissolve out the lime from the freshly amelified enamel rods with which they come into immediate contact at the gingival border?

Upon the conclusion of Dr. Eames' paper, the reading of which was attentively listened to throughout, the society took a recess until two o'clock P. M.

AFTERNOON SESSION.

The regular order, discussion of Dr. Eames' paper, was announced, and Dr. L. C. Ingersoll was invited to open the subject.

Dr. Ingersoll.—The subject presented in the very lucid and able paper by Prof. Eames is too large to be fully covered within the limits of a discussion upon an occasion like this. I can, therefore, only allude to what I consider the more salient and important points.

The imperfect enamel tissue appearing in single spots, pits or wells, in various locations, I am willing to concede is due to congenital causes. The theory of Prof. Eames is ingenious, but cannot, I think, apply to the first molars and bicuspid. But we do agree in this—that the old theory is wrong—and as I proceed, you will see where we disagree.

The strongest advance in the historical argument in support of the old theory of congenital disease is found in the oft-repeated statement, "the child's mother told me so." Yet look at the portentous array of diseases to which children are subject in early life, and you will see that it is almost impossible for the child not to have had some of these diseases before attaining the age of five years. So when the mother is asked "Did not the child have such and such a disease at a certain age?" she immediately and truthfully answers "Yes." The child may have had measles, whooping-cough, eclamp-

sia, scarlatina, eruptive fever, gastric fever, scald head, or any of a long list of exanthematous diseases to which children are especially liable at the assumed period of age mentioned by the inquirer. And we are told that these markings on the teeth enable one to determine the age when this constitutional disturbance occurred.

Now what does the average dentist say relative to the formation of the pits and grooves of the teeth? He assumes that when one groove was formed the child had, say scarlatina, at another time whooping-cough, at another chicken, or possibly, small pox; next, perhaps eclampsia, and so on to the required number of diseases corresponding with the number of grooves found in the child's teeth. If anything can be found in the whole range of etiology more ridiculous than this, I should like to have it shown.

If we carefully examine the commonly accepted theory, we shall find that it is based on the hypothesis that, while the enamel is being formed, a line of enamel cells, extending horizontally across the labial face of the tooth, ceases for a time the process of amelification, and the result of this suspension of function is a well marked line or groove, or irregularly formed pits, which come into view when the tooth emerges from the gum. Dr. Eames stated in his paper on the subject, read last year, that enamel is deposited in continuous sheets over the entire cap of dentine.

Now I maintain that the doctrine of alternate vital action is the physiological law of all development. The working out of this law is one of the economies of nature. Observe the development of the buds and the leaves of the tree. The roots have shot out under the ground; then they cease to grow, and the leaves take their turn at development. In the case of the peach, the young fruit grows rapidly until it reaches the size of a robin's egg, when comes a period of suspended growth. During this period of apparent rest the life force of the plant is not suspended, but is engaged in the work of developing some other part. At this time the stone, which before was pulpy, becomes hard and stony, and the force of the tree is expanded in the development of its seed. Alternate development is, therefore, a physiological law, and arrested growth or tissue impairment is not dependent upon the occurrence of constitutional disease.

The most puzzling question involved in the old hypothesis, is how to account for the occurrence of *parallel* grooves, disposed at regular intervals, and sometimes numbering as many as five or six.

The theory that I propose is that these markings do not occur during follicular growth and development, but are the result of action which takes place after the crown of the tooth has penetrated the gum. The groove is formed by chemical erosion of the enamel, and the line of action corresponds with the margin of the gum. This action takes place on the labial and buccal surfaces, and sometimes, when conditions are favorable, on the lingual also. This destructive process may be carried on at any stage of the eruption or emergence of the crown, and will occur at intervals by reason of the operations of the physiological law which governs both plant and animal development. The law of *alternate* vital action prevails in both kingdoms; that is, active development alternates with suspended or diminished development.

An acrid fluid, capable in its nascent condition of dissolving the lime salts of the enamel, is often found at the margins of the gums, which during the stay in the emergence of the tooth forms a groove by erosion. When active emergence is renewed, the moving tooth is not liable to be thus affected; but on the return of the cessation of emergence, erosion again takes place, and a second groove is the result.

The subject being passed, the discussion of Dr. Judd's paper on Inflammation was declared in order.

Dr. Crouse—I would like to ask Dr. Judd a question concerning dental caries in relation to inflammation.

Dr. Judd—I stated Dr. Stricker's theory of a return to original conditions, but I said I did not agree with it. In fact, I do not think the theory is endorsed by many scientific men.

Dr. Crouse—I would like Dr. Taft's opinion; whether he agrees with or endorses the theory.

Dr. Taft—The hypothesis is all nonsense. It is impossible to return to that condition. But the expression is used in referring to decaying teeth. I have not been able to get a good idea of the

theory, for the reason that the champions of it themselves differ in expression.

Dr. Crouse—I will ask Dr. Black about that theory of Stricker. I understand he favors it.

Dr. Black—I will answer like the little boy—"There's nothing in it."

THURSDAY MORNING CLINICS.

The time was occupied until noon in clinics, which were held in the ladies' ordinary at the Leland Hotel.

Dr. J. A. Swasey, of Chicago—Illustrated the use of Robinson's metal in conjunction with gold foil. He operated on a lower left inferior molar, which contained a large, complicated cavity. The body of the filling was of Robinson's metal, finishing with gold foil, Nos. 4 and 10. The clinic was made for the purpose of showing that the combination of the different materials would form a better filling in teeth with large contours and deep cervical walls, than either material alone.

Dr. Jas. G. Reed, of Chicago—Demonstrated the method of filling root-canals with gutta percha dissolved in chloroform.

Dr. Conrad, of St. Louis—Mounted a porcelain crown on the root of a cuspid. In some particulars the method he followed was an original one.

Dr. E. Honsinger, of Chicago—Filled a posterior approximal cavity in a second inferior molar. This was filled with Watts' crystal gold, and the operation occupied three hours.

Dr. H. H. Townsend, of Pontiac—Operated on a left superior first bicuspids, from which the pulp had been removed.

The root canal was filled with white gutta-percha solution. The cavity was compound, being upon the distal and across the grinding surfaces, and was filled with gold. The operation was completed with Williams' rolled gold No. 120.

Dr. Edgar D. Swain, of Chicago—Mounted a gold crown on a first left inferior molar. This tooth was badly broken, the fissure on the inside extending far below the gum.

(TO BE CONTINUED.)

CHICAGO DENTAL SOCIETY.

JULY MEETING.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY A. E. BALDWIN, M. D.

The paper of the evening was by Dr. A. W. Harlan; the subject, "Gold and Tin Combined as a Filling Material."

The essayist said that attention to present dental literature develops the fact that the tendency of to-day is to deal mostly with histological conditions, causes and treatment. This being the fact, he had ventured to present his paper on the above subject, as we all must admit that the filling of teeth (for the future as the past) will occupy the greater part of the dentist's time. He would state it as his belief that gold is the best material for filling the greater proportion of tooth cavities; but in some cases it is not practicable:

First, because of inability of the patient to pay its price. Second, lack of endurance for protracted operations on the part of the patient. Third, the impossibility of making them uniformly good for young, aged and weak. Fourth, because of the habits, age, or condition of the patient. Fifth, in the majority of children under sixteen to eighteen years of age. Sixth, the certainty of failure in certain teeth at any age. And in addition, every thinking dentist will find that in certain cases other material is better than gold.

We have amalgam, tin, Robinson's fibrous material, gutta-percha, oxy-chloride and oxy-phosphate of zinc, and other combinations, among which is gold and tin. With amalgam he would advise that it be used only in obscure places, or in crowns of lower molars. Condemns its use underneath large gold fillings, when other materials may be used more advantageously, and serve a better purpose.

Tin may be used in the first part of proximal fillings in molars or bicuspid, and in any temporary teeth. It may be used in small crown cavities, in children's permanent molars, and in third molar cavities; also in many cases in other teeth where the cavity is not in view. Gutta percha, as a rule, should be employed only in temporary teeth. Oxy-chloride of zinc should only be used in pulpless teeth, and then be covered with a metallic filling. Oxy-

phosphate of zinc may be used in teeth with or without pulps, but should in every case be covered with metal. In proximate cavities in incisors he would prefer oxy-phosphate to the oxy-chloride of zinc, because it is less irritating.

The combination of which this paper is written originated with Dr. F. P. Abbot, of Berlin, in whose hands it has successfully stood the test for more than thirty years. He does not use it simply to save gold, but finds that certain teeth can be saved with this combination that could be saved with neither gold, tin, nor amalgam. He prepares the material by taking a sheet of about No. 4 tin foil, and laying on it a sheet of No. 4 non- or semi-cohesive gold foil, folding them together so as to have the tin inside the gold, or twisting them in a roll, the gold outside, and (producing a set of six instruments) with these instruments he can fill any cavity. The instruments are modified forms of fine soft gold pluggers. Since adopting the above combination the essayist has almost abandoned amalgam. He commended the gold and tin for its density, easy insertion, capacity for fine finish, its non-conducting and non-shrinking qualities, and its compatibility with tooth structure. The chlorides and oxides of tin are also antiseptic. Those who have not used this combination will be surprised at the rapidity with which it may be used. It may be employed in any cavity not exposed to view, and in buccal, crown and proximal cavities in molars and bicuspsids. The cavity should be prepared so as to be retentive in shape. He has used it largely in proximal cavities extending over the crown, and finds them resisting wear to an astonishing degree. It may be used anywhere that amalgam can, and with more certainty of non-leakage, and has the additional advantage that it can be finished at the same sitting. In the manipulation of this combination care is necessary to avoid chopping up the material in packing it. In answer to a question the essayist said he would not use a mallet until the filling was all in.

DISCUSSION.

Dr Allport—Premised his remarks by saying that this, though an old and hackneyed subject, was one of prime importance, and we could not know or hear too much of it. No one could understand

too well how to fill teeth. Fillings exert their influence in saving the teeth in two ways: one by hermetically sealing, and the other by the therapeutical effect of the filling material. The method spoken of in the paper was not new, and the instruments used are almost the same as those used for soft gold. He believes the most important power exerted is in the therapeutical effect, as tin when brought in contact with the fluids of the mouth is acted upon, and produces oxide of tin. We get also a sulphate, and by a chemical interchange the sulphide. It is well known that the oxide of tin is destructive to all the low forms of animal life. But with the material used as spoken of in the paper, the tin is excluded from the contact with fluids, being covered with the gold. Hence we would not get the therapeutical effect.

Dr. Cushing—Said he was rather skeptical as to the therapeutical effect of any material; he believes the tin has attained its notoriety over other filling materials more by its adaptability than from any therapeutical reason.

Dr. Marshall—Said he had seen fillings which had been put in by Dr. Wescott, of Syracuse, New York, where tin had been used in the bottom of the cavity. In these cases he found the tin crystallized. The tooth discolored some, but in appearance it was perfectly preserved under the tin. He is a firm believer in the therapeutical action of fillings, especially of tin. He spoke of Dr. Kingsley's method of patching gold fillings with tin or amalgam, and as proof of the preservative effects of tin cited the burial cases in England, which were tin-lined. The parts of wood in contact with the tin lining, and the copper nails, were preserved when other portions had long since decayed. In a live tooth moisture is present in all cases in tooth structure, resulting in the natural formation, when tin is present, of the oxide.

Dr. Hughes—Cited a case similar to those spoken of by Dr. Marshall, where a filling had been in over thirty years, and after the filling was removed he could clearly distinguish the portion occupied by the tin, because of the absence of decay.

Dr. Crouse—Said he had never been a believer in the therapeutical action of fillings. He could endorse the remarks made by Dr.

Cushing. As a matter of fact, there were lamentably few perfect fillings, and in the defectiveness of the work may be found the cause of a large share of the failures of fillings. He does not see any advantages in Dr. Harlan's method of using tin and gold. He uses tin largely, but does not finish filling with it, because he wants something harder. If he gets perfect manipulation, and the co-operation of the patient (by keeping teeth cleansed), he has little trouble with failures. He thinks a reason why tin does as well as it does is its almost perfect adaptability. He uses tin pellets in difficult places, then finishes up with gold. Believes more pains should be taken to teach students how to manipulate soft or non-cohesive gold. He quoted cases where he had put in tin fillings in a hasty and imperfect manner, not expecting them to stand, and they had surprised him by perfectly preserving the teeth.

Dr. Allport—Said the cases quoted by Dr. Crouse would prove just the opposite of his statement; that is, they must have acted by therapeutical effect. Even accepting the correctness of the views of Dr. Crouse, tin would be the best material to employ, because it could be successfully used with much less skill. He thinks this method is advantageous in making solid and easily adapted fillings. No one can question the fact that the salts of tin are very destructive to the low forms of animal life; neither can there be any question but that bacteria produce decay.

Dr. Koch—Thinks the success of these fillings lies in their adaptability, not in the cohesiveness of the gold, nor in the therapeutical effect of the tin.

Dr. Baker—Firmly believes in the therapeutical effect of tin; does not believe in the wholesale condemnation of cohesive gold fillings; believes the trouble with them is almost wholly in faulty manipulation. Should advise the use of the ribbon form for fillings.

Dr. Harlan—Says he folds the tin and gold sometimes with the gold outside, and sometimes the tin; he uses it principally when he would otherwise use amalgam. It can be inserted very quickly. He does not believe in the therapeutical action of tin. Oxide of tin is a white, insoluble powder, and the sulphide of tin is not formed in perfectly filled cavities.

Reports of Society Meetings.

The Society adjourned to meet the first Tuesday in October, when Dr. Marshall will present a paper on "Pregnancy, and its effect upon the teeth of the mother and child"

AMERICAN DENTAL ASSOCIATION.

TWENTY-FOURTH ANNUAL MEETING, AT SARATOGA.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY PROF. CHAS. MAYR.

The meeting opened at 11 o'clock Tuesday, August 5, President E. T. Darby in the chair.

Prayer was offered by Rev. Dr. Cary of Saratoga.

After the calling of the roll it was voted to dispense with the reading of the minutes of the last meeting. The chairman of the committee on arrangements reported the programme as follows: Daily sessions from 9.30 A. M. to 2 P. M., and from 8 P. M. to adjournment.

It was on motion voted to have a clinical session Wednesday afternoon.

The Secretary, Dr. Cushing, reported amendments to the constitution, and asked unanimous consent for their immediate adoption. Section 2 of Article 6 to be so amended as to make it the duty of every permanent member to inform the Recording Secretary, before the close of the *second day* of the meeting, of the section which he desires to join. Other amendments provided for the early organization of the sections, the object of the whole being to secure a more perfect organization of the various sections. The amendments were unanimously adopted.

The President then read his annual address, and upon motion of Dr. McKellops it was referred to a committee of five, consisting of Drs. Brown, Harlan, Taft, Foster and Pierce for special consideration and report.

On motion of Dr. Ambler a committee of three was appointed to draft suitable resolutions relative to the death of Dr. T. L. Buckingham. The President appointed as such committee Drs. Ambler Allen and Taft.

Dr. C. N. Pierce—Called attention to the fact that there would be

an adjourned session of the meeting of the Faculties of the Dental Colleges during the afternoon.

Dr. Geo. H. Cushing, chairman—Read the report of the Committee on Publication.

Dr. C. D. Cooke—Called attention to the fact that the names of a number of men were reported as members of sections who were not members of the Association.

The Secretary—Announced that he had retained the names of some who had allowed their membership to lapse, but in every case he had reason to believe it was through inadvertence, and not from a desire to withdraw from the Society. Adjourned.

TUESDAY EVENING SESSION.

The meeting was called to order by the President.

It was voted that Wednesday evening's session be devoted to the paper on Histology, by Dr. J. L. Williams, with its stereopticon illustrations.

Section VI., "Pathology, Therapeutics and Materia Medica," was then called, and the report was presented by the chairman, Dr. A. W. Harlan. The subject was *Pyorrhœa Alveolaris*. The author said that the report was but a continuation of the paper of last year, bringing out details suggested by numerous inquiries. He was gratified to know that his efforts have been so spontaneously recognized, and expressed his acknowledgment. Many in the profession are liable to confound salivary deposits on the lower incisors, or on the palatal or labial surfaces of molars, with *pyorrhœa alveolaris*. These are only in a slight degree the cause of, or associated with, this affection. In all cases of abundant discharge there may be observed a loss of tissue around the teeth, whereby their symmetrical outline becomes irregular, and this finally leads to extensive destruction of the bone.

It is not a disease of old age, any more than of youth or middle age. I have seen it as early as the ninth year, and several times before the sixteenth year. My experience leads me to think that between the ages of twenty-five and forty it is most frequent. Pulpless teeth do not escape the ravages; users of tobacco are not

less liable to attack than those who abstain. In the course of the disease the teeth twist, change position, and protrude. If thoughtlessly extracted, the features may be greatly altered. The fact remains that a vast majority of cases is unaccompanied with salivary calculus. In most cases the gums have a purplish color, corresponding to the shape of the pockets. As regards the treatment, experience has shown the necessity for the use of instruments of extreme delicacy to examine the pockets for sanguinary deposits, etc.; if salivary calculus is found, it should be carefully removed and the case treated with the following preparation:

| | |
|-------------------|-------------------|
| Pinus canadensis, | $\frac{1}{2}$ oz. |
| Aqua rosae, | 1 oz. |
| Eugenol, | 30 drops. |

to be applied twice daily.

To remove the calculus I use Cushing's scalers, necessitating a pushing motion. In addition, two or three properly shaped excavators are necessary to scrape the edge of the alveolus. A fine pointed syringe is needed, the point not too sharp, with the opening near instead of at the point. $H_2 O_2$ (hydrogen peroxide) ought to be injected immediately after removal of deposits or excision of the edges of the processes. I also use iodide of zinc in solution, three to forty-eight grains to one ounce of water, and begin by the injection of three to four drops into each pocket, after the injection of the $H_2 O_2$. I have also used Eugenol and Sanitas oil in place of hydrogen peroxide. I direct my patients to brush the gums with a stiff brush, and discontinue the use of the pinus canadensis after the beginning of the treatment of the pockets. Loose teeth are bound together with binding wire of silver, platinum, or gold. When the suppuration ceases, the injection of hydrogen peroxide is discontinued, and a dentifrice of the following formula employed:

| | |
|--|-------------------|
| Precipitated chalk, | 2 oz. |
| Orris root, | 2 oz. |
| Castile soap, | $\frac{1}{2}$ oz. |
| Powdered borax, | $\frac{1}{2}$ oz. |
| Powdered myrrh, | $\frac{1}{2}$ oz. |
| Glycerine and honey, enough to form a paste. | |

If desired, I add about twenty drops of Eugenol. After the fourth or fifth visit the interval may be longer; once a week, and so gradually increased. As stated before, in all cases of pyorrhea with pain, Iodoform made into a paste with Oil of Cinnamon and Oil of Eugenol is an excellent local anæsthetic. I have also had good results from injection of a weak solution of Chloride of Alumina, one to two grains to one ounce of water. Iodo-chloride of zinc, a saturated solution of Iodine, Wood Creosote, Iodoform, Eucalyptol, a diluted alcoholic solution of Menthol, etc., have also been used, but I prefer the first mentioned remedies.

The second portion of the report was upon the qualities and character of Eugenol and Oil Sanitas. Eugenol is the essential principle of Oil of Cloves.

It is known among chemists and in the dispensatories as Eugenic acid. It is prepared by decomposing Eugenate of Potassium with Sulphuric acid; it is then rectified. An oil of low specific gravity is obtained. It has the odor of the oil of cloves and the composition $C_{10} H_{12} O_2$. It is not decomposed at ordinary temperature, has no tendency to become thick on exposure to air, or to precipitate a sediment. It may be diluted with water or alcohol. It is a powerful parasiticide. When applied to an exposed pulp the pain is greatly reduced, and soon ceases altogether. If the cavity is previously washed with Biborate of Soda, it is probably the best dressing for slightly inflamed pulps, not excepting the various iodoform pastes. It may be injected into fistulous tracts, and the cavity sealed immediately. I have injected three drops into the interior of an epulis, and in three weeks it has disappeared. As an injection into the root it should supersede all the powerful coagulators; diluted with water, 1 to 1,000, it forms an agreeable dressing, and may be substituted for $H_2 O_2$. With proper precaution it may be injected full strength into an abscess without danger.

Sanitas oil is obtained by the oxidation of oil of turpentine. It is produced from turpentine floating on water, by directing a stream of heated air on its surface. It contains an empyreumatic oil, and a substance probably identical with $H_2 O_2$. It possesses oxidizing power equal to a ten volume solution of $H_2 O_2$, and may be consid-

ered as a convenient method of storing it. In it we have a germicide of the first rank. Combined with volatile oils it gives a dressing which is disinfecting, antiseptic, and not poisonous. It has the odor of fresh pines, which may be disguised by oil of Gaultheria, Eugenol, or Eucalyptol, but a large volume is needed. It has been used for injection into the pyorrhœa pockets in the treatment of alveolar abscess, and as an ingredient of mouth washes for the treatment of recent wounds, and as a dressing over exposed pulps. It is soluble in alcohol and ether, and some of the essential oils. Eugenol may be procured from Seward and Merks, while Sanitas is made by the Sanitas Company, in London, England, and is imported by Sargent, Chicago.

(TO BE CONTINUED.)

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

A regular meeting of the Central Dental Association of Northern New Jersey was held at the house of Dr. C. F. W. Bödecker, of New York, at 60 East Fifty-eighth Street, on Monday, April 20, 1884, the President, Dr. Barlow, of Jersey City, in the chair.

Upon motion of Dr. Levy the regular order of business was suspended, and Prof. Abbott proceeded to address the meeting.

(Dr. Abbott's address will be found on page 475.)

DISCUSSION.

Dr. Watkins—I feel that I am well paid for attending this meeting. I would, however, like to have Dr. Abbott tell us how he caps exposed pulps, and what his treatment is when he amputates a part of the tissue.

Dr. Abbott—I treat the case as simply as possible, and I use as little in the way of medicines as will accomplish the result. If I find the pulp of the tooth exposed, that is, a recent exposure, I at once cap it. I do it in the following manner: When I have prepared the cavity and everything is ready, I place a little bit of cotton saturated in creosote directly upon the exposed point, and another larger piece over that, producing a slight pressure upon the pulp. This I allow to remain until my capping material is prepared. I then remove the cotton and place the cap in position. I use my

cement quite thin, and allow it to gently flow over the exposed point of the pulp. Then, if I am in a hurry, and wish to fill with a substance that requires pressure, I place a small piece of platinum over the cap, and proceed with my work. The cement I am now using for this purpose is prepared by the Union Tooth Company.

If the patient comes back with any disturbance (which, however, does not occur in more than one case in twenty), I paint the gum with aconite and iodine; this I do two or three times. If that does not relieve it, I remove the filling and apply creosote again, upon a little cotton, and cover that with gutta percha and wax for twenty-four hours. If there is no pain I go on and cap again, the same as before. If any of the pulp has died I take a sharp bur drill, large enough for lateral cutting, so as to prevent the sudden injury to the pulp, and cut until the patient feels a like pain. I then wash out all the dead matter and bits of tooth with warm water and salt, and apply creosote upon cotton, and cover over with gutta percha and wax for a few hours, or perhaps two or three days, and if everything is quiet, I go on and cap as before.

When a small portion of the pulp only is alive in a pulp canal, I carry a little twist of cotton saturated with creosote against that, leaving the end of the twist sticking out of the canal into the pulp chamber, put a little cement in the bottom of the cavity, and fill. The twist of cotton is left in this position, so that should occasion require it can readily be removed.

Dr. Watkins—Would it not be the fact that if liquid gutta percha were used as a root filling it would flow around part of the pulp and remain under the root and seal that part up; and if so, is there danger of that part becoming putrefied?

Dr. Abbott—I think not.

Dr. Palmer—I have heard this question of filling the roots with oxy-phosphate and oxy-chloride of zinc discussed, and it is said that they would be liable to deteriorate. I want to know what is the experience of those present in regard to this.

Dr. Abbott—I don't believe any such thing. I have now in my possession a molar tooth through which three drill-holes were made, and cotton saturated with oxy-chloride of zinc penetrated the

alveolus from one-eighth to a quarter of an inch in depth, where it remained a year or more, and no deterioration took place.

The meeting, upon motion, was adjourned.

CONTINUATION OF DISCUSSION AT THE MAY MEETING—INCIDENTS
OF OFFICE PRACTICE.

Dr. Watkins—I have a case in which I am very much interested. I would like to describe it here. A young lady came to my office from New York with the intention of having two teeth bleached and returning the same day. They were both dead—one beginning to ulcerate.

They were the upper and lower left central incisors. There seemed no particular cause for the death of the pulps. The upper one had a very small approximal filling. The lower one had neither filling nor cavity. I drilled into each of them and removed the putrefied pulps. The lower one gave no pain whatever. I disinfected it thoroughly by carrying iodoform through the canal to the apex, and filled the end of the canal with gutta percha, then bleached the tooth with Labarraque's solution and alum, and filled nearly full with oxy-chloride of zinc and covered it with gold, painting the gum with tincture of aconite and iodine. I then disinfected the upper one, but the pain in that did not cease; painted the gum, and advised her to remain over night; continued the painting every two or three hours, which would give relief for a few minutes each time. During the night the lower one began to cause pain. In the morning it got its full share of aconite and iodine, but apparently without benefit. Then the capsicum bags were tried, which gave relief for a short time. I was obliged to go to New York that evening, and accompanied her to the train. Almost immediately the pain returned, and I think I never saw such agony, and all of this after being thoroughly dosed with iodoform, aconite and iodine, and capsicum bags. Upon arriving in New York we called at Dr. Lee's office, and after consulting together and trying different remedies without relief, I decided to try the remedy recommended by our old friend, Dr. Atkinson, which is to insert a sharp knife through the gum, as near the end of the root as possible; with a firm, steady hand press it into the cementum, and draw down or up, as the case

may require, almost to the edge of the gum. I applied crystallized carbolic acid to the lower gum first, just where I wanted to cut it, which destroyed nearly all sensitiveness, and hurt her very little. Just a slight flow of pus, with considerable congested blood, passed out in a moment. As soon as she had removed the blood from her mouth she begged me to cut the other one, exclaiming that it felt good, which I did in the same manner, and the pain disappeared entirely. Five days have elapsed, and to-day she wrote me that she had suffered no pain from the teeth since.

Dr. Cosad—What followed the lancing?

Dr. Watkins—In the lower one just a little pus and considerable congested blood; in the upper one nothing but blood.

Dr. Luckey—I have a case that will illustrate the forbearance of nature toward *some* foreign substances, and also what can be done with liquid gutta percha as a root filling. Last Friday morning a patient came to me with a tooth that I had been treating for abscess. It was a superior central incisor, and there was a large, fistulous opening in the gum. There was no sign of inflammation, so I determined to fill the root at that time. I applied the rubber dam, washed out my medicines, dried everything nicely, and then filled it carefully with gutta percha dissolved in chloroform. On removing the rubber dam, and raising the lip I was surprised to find my beautiful gutta percha sticking out of the fistulous opening. I asked the patient if she felt any pain. She said she did not—even felt comfortable. I took a spoon excavator and went through the opening clear to the root, and removed every particle of the gutta percha, painted the gum with aconite and iodine, and dismissed her until this morning. When she returned she said the tooth had been very comfortable, and had given her no trouble whatever. The first thing I did was to raise her lip and examine the fistula, and there, to my astonishment, I found three or four good-sized globules of gutta percha along the track, which must have come from the root since her last visit. I removed them and then filled the tooth permanently with gold. I think that is pretty good evidence that nature will tolerate gutta percha so long as there is room for it, and it does not cause undue pressure on the surrounding parts.

B. F. LUCKEY, D. D. S., *Sec'y.*

SOUTHERN DENTAL ASSOCIATION.

SIXTEENTH ANNUAL MEETING, HELD AT LEXINGTON, KY., MAY 6, 7, 8 AND 9, 1884.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

(Concluded from page 448.)

AFTERNOON SESSION.

Dr. A. O. Rawls—Desired to call attention to that bugbear—so called, because it is not understood—the etiology, pathology, and means of cure of the disease *pyorrhœa alveolaris*. He (Dr. Rawls) had stated his views, and had the support of Dr. Rehwinkel and several others; that the disease is constitutional with a local indication. It invariably follows the use of mercury. It is transmitted from parent to child, even to the third generation. It is of the same nature as scurvy, but is not the same in the general system. Similar conditions are found where tomatoes are largely used; canned tomatoes especially. It is well known that mercury acts upon the liver, and that tomatoes act exactly in the same way, though with less effective results. It will be found that with tomatoes the same results can be produced as with mercury. He knew of but one common constituent in salt, mercury (calomel?) and tomatoes, that is: chlorine; therefore he concluded there must be some combination into which it entered to produce an influence on these peculiar tissues. The only way of cure, he fancied, was to remove all sources of irritation; not only remove the tartar, but cut away the diseased tissue. After the operator had done all he could with his instruments, he would be simply waiting for the disease to take hold of the other parts. He had heard of different medicaments, of antiseptics; but they do not radically cure the disease. They only stop the further action of the irritants.

Dr. Taft—Was somewhat in doubt as to the heredity of mercurial taint. When one becomes deteriorated, the progeny will not be strong; but he doubted whether a positive mark could be transmitted.

Dr. Rawls—Held that if we believe in the transmission of a single physical quality, we must believe in the transmission of

mercurial taint. Consumption is hereditary; scrofula is hereditary. In these the transmitted molecules are similar to those of the tissues of the parent. We do not know that the mercury is carried along; we have no right to believe that; but we have a right to believe that its effect upon the tissues is transmitted in accordance with the peculiar surroundings of parent and child.

Prof. Taft—Admitted the transmission of constitutional peculiarities, at least those of static character; but those of an accidental nature are not transmitted, such as the loss of a finger, or the loss of part of a tissue. If inherent, they will, but if accidental, they will not be transmitted. The mercurial condition is only accidental.

Dr. F. Peabody—Agreed with Dr. Rawls about the transmission of the disease. He had seen in mother, son and daughter, the disease in the same tooth. The theory as to mercury might be correct; but, if so, it was more from the dying-out effects than the positive effects. Much mercury was given years ago, all through this southern country. Then the disease was not known; but now we see much of it. He believed it was a systemic or "blood" disease.

Dr. Patrick—Stated his experience to be that when the disease had not progressed too far, cleanliness was the best thing. He considered it local, and not constitutional, though the anatomical form of the teeth and alveola might be hereditary, and this makes certain teeth more liable to dislodgement. All the successful treatment he had heard of had been local. Those treating the disease called it a constitutional affection, but treated it locally. The transmission of disease was questionable in any case. There were some conditions of body in which more lime was secreted than in others. Thus far this disease might be constitutional in the deposit of tartar. He had never found satisfactory proof that it was in the blood.

Prof. Smith—Considered that peroxide of hydrogen was not the thing to use in such a disease. Putrefaction requires free oxygen. The bacteria feed on pure oxygen. He agreed that cleanliness was the best remedy. The germ might begin in the infant when nursing, as from a filthy nipple.

Dr. A. Berry—Said this was a common disease, now and for-

merly. It occurred in persons otherwise healthy, and was too often neglected. If the patient had not the fortitude to stand heroic treatment, he had better be let alone.

Prof. Smith—Desired to speak further on nursing. Since he had taken his seat a book had been placed in his hands. It was the *INDEPENDENT PRACTITIONER*. In it he found a paper by Dr. Miller, of Berlin, Germany, on fermentation in relation to caries of the teeth, in which lactic acid was referred to as an agent. Now, if lactic acid ferment be a cause of caries, why not of *alveolaris pyorrhœa*? His attention had been first called to the probability of disease arising in the mouth of an infant by seeing a very filthy mother suckling a child. It was well known that many mothers were very careless in regard to the cleanliness of the nipples in nursing, and this might easily be the origin of disease of the teeth.

THIRD DAY.

The Association visited "Ashland" in the morning, and being invited also to visit "Ashland Park," the farm of B. J. Tracy, an extensive horse-breeder, the members spent the entire forenoon at these two places. Failure to catch the train prevented the visit to Alexander's farm in the afternoon, but no session was held during the day.

EVENING SESSION.

A paper by Dr. B. H. Teague, of Aiken, S. C., on dental literature, was then read. After the transaction of considerable routine and local business the Association proceeded to the election of officers for the ensuing year, which resulted as follows:

President, Dr. A. O. Rawls, Lexington, Ky.; 1st Vice-President, W. R. Clifton, Waco, Texas; 2d Vice-President, T. S. Waters, Baltimore, Md.; 3d Vice-President, B. H. Catching, Atlanta, Ga.; Corresponding Secretary, J. L. Fountain, Bryan, Texas; Recording Secretary, R. A. Holliday, Atlanta, Ga.; Treasurer (re-elected), H. A. Lawrance, Athens, Ga.

THE NEXT MEETING.

On motion it was decided to hold the next annual meeting in New Orleans, on the last Tuesday in March, 1885, to which time the convention adjourned.

Editorial.

THE EDUCATIONAL PROBLEM—VICTORY.

If this were a political weekly, instead of a staid scientific and professional journal, the INDEPENDENT PRACTITIONER would probably hoist at the head of this column a rampant rooster, in celebration of the long step in advance made by the Association of Colleges, a report of whose meeting may be found in this number. The accomplishment of the event is one in which this journal takes some pride, for we believe it has been largely instrumental in bringing it about. Our readers may now know for what purpose we have given space to the various articles upon this subject, contributed by both European and American writers.

The Degree of Doctor of Dental Surgery is distinctively an American degree. Dental Colleges exist nowhere, save in America. It was their organization that placed American dentistry ahead of the world. As long as students were required to complete a full curriculum of study, and none but those possessed of the requisite preliminary qualifications were permitted to matriculate, we easily maintained our lead, and foreign students resorted to our schools to finish their professional education. (It should be remembered that graduates of most of the foreign Universities are supposed to be fully qualified to practice either Medicine, Law, Theology, or Dentistry, without special study.) In an evil hour some of our colleges agreed to accept twelve years' practice as the equivalent for one term of schooling. The downhill road once entered upon, further reductions soon followed. The practitioner of *five* years' standing was accepted as a second year student. *Facilis descensus Avernii*, and soon the five year practitioner was only required to show himself occasionally at lectures. It was but one step further to allow the practitioner to present himself for graduation upon a mere examination at the close of a term, and this in many cases degenerated into a mere form. There was but one deeper depth in college degradation, and the diplomas of regularly chartered schools were soon almost openly offered for sale. Dentists who had obtained

some standing in the profession (and some who had not) were ambitious to affix the dubious title "Professor" to their names, and covetous of the fees that could be earned, and schools multiplied. The competition for students became active, and the standard continued to droop. Some of our most reputable colleges entered upon the work of granting degrees upon examination only, and this soon became almost the rule. It was urged that the possession of the necessary qualifications, however obtained, should be the criterion, forgetting that the diploma of a college is not an indication of the acquisition of a given amount of practical knowledge, but the evidence that the graduate has pursued a specified course of study. A diploma does not make a dentist, nor a physician; but it should be testimony that its possessor has had the opportunity to qualify himself to be one. To their credit be it said, a few of our colleges had not bowed the knee to the golden calf, but had stoutly maintained their integrity, and refused to grant their honors to any, except such as had spent the requisite time within their walls.

Formerly it had been the educated class of foreigners who had sought our schools, and they had come for legitimate training. But now charlatans of all grades came diploma-hunting. Uneducated men, who were even ignorant of the English language, and therefore unable to profit by the lectures, stoutly represented themselves as five-year practitioners, and after a brief sojourn in this country returned to Europe armed with college diplomas, and the colleagues of reputable graduates. It is little wonder that the American degree began to fall into disrepute, and the graduates of European Universities refused to place themselves upon a level with these pretenders and impostors. The character of European students underwent a complete change, and in place of intelligent gentlemen, most of our schools began to be infested with mere adventurers and charlatans. The low grade of professional education in this country was reflected upon our American representatives abroad, and they felt the disgrace keenly. American dentists at home began to vent their dissatisfaction in our societies, and there were ominous mutterings in all directions.

It was at this crisis that the present publishers of the INDEPENDENT PRACTITIONER thought they saw an opportunity to do some good work for their beloved profession. When they purchased this magazine and organized their Association, it was their avowed determination and distinct understanding with each other, that the reorganized journal should begin an agitation for reform in our schools. But it was necessary to proceed cautiously, and to avoid the imputation of wanton iconoclasm. Both in the "Editorial" and "Original Communications" departments, it began immediately to lead up to the subject, and to call the attention of the profession to the educational status. Statistics and facts were gathered, correspondence with representative men unconnected with the schools was carried on, and shortly after the last annual meeting of the stockholders it was decided to speak in yet plainer tones. It was determined that as soon as an opportunity was offered it would lay before the profession all the facts in some case of graduation *sine curriculo*, regardless of whom it affected, and appeal to the profession for judgment upon a practice that was fast becoming universal. One of the publishers was himself the Dean of a Dental College, but it was fully understood that if a case arose implicating his own school there should be no staying of our hands, and to this he cordially agreed.

The instance presented itself, and true to our resolution the charges brought in our June number were published, although they involved the names of some of our best friends. It was not in enmity to them, or in hostility to the Baltimore College, that we gave the article place. There was a principle involved, that we deemed of vital importance to the profession. Those who had not comprehended our purpose had denounced us for articles already published, and we were loudly threatened by others who did not see the end at which we aimed, if we gave to the world specific charges. We submit that in view of these things it required some courage to open the matter in the way in which we did it. But we trusted to a hoped-for victory for our justification. We believed the granting of other than honorary diplomas to even the most reputable dentists, upon a mere examination, was vicious in principle, and demor-

alizing in its tendency. We were quite as certain that the allowing of five, or even ten years' practice, as the equivalent of one course of lectures, was almost equally wrong, and we thought that when specific cases were presented the profession would not be slow to perceive it. The victory has come sooner than we anticipated, for the colleges themselves have recognized the propriety of the principle, and have not waited for the voice of the profession to be heard. We believe the action taken at New York and Saratoga is fraught with more of good to the educational interests of the profession than anything that has transpired within our knowledge. Our end is gained. The discussion of this subject will now be dropped, so long as the colleges stand by their agreement. We do not think a single reputable school will refuse to come into the arrangement. Certainly, they cannot afford to do so, and should they decline it will be the duty of such State Societies as have proper legislation to sustain them, to refuse to acknowledge their diplomas, and to prosecute every graduate who attempts to practice under them. Colleges can act their pleasure about joining the Association, but they must conform to the standard.

Should any of the schools, after the session of 1884-85, go back to the old standard, the *INDEPENDENT PRACTITIONER* will publish every well attested instance, and warn the profession against them.

And now, concerning the discussion between the Baltimore Colleges. Notwithstanding our pruning of every article submitted to us, much has been allowed to appear in these pages which we regretted, but which under the circumstances we felt powerless to prevent. Both sides have been given two opportunities for a hearing. With the publication of the article by the Faculty of the Baltimore College in this number, the discussion is closed, so far as this journal is concerned. If the spectacle of this washing of dirty linen in public has been a painful one, we think the end has justified it. Both sides may have the gratification of knowing that they have contributed toward a very desirable consummation. The men whose names have been used can feel assured that their own complaisance, while in a painful position, will be fully appreciated by a grateful profession. Our contributors, foreign as well as home,

who have furnished us articles that have assisted in the work, are entitled to the thanks of all who love their calling.

In conclusion, it is but fair for us to state our opinion, that if the Baltimore College has been guilty of any "irregularity" in the granting of degrees, it was one that was far too *regular*, for while it does not deny the conferring of diplomas *sine-curriculo*, it has but followed a practice that has become too general among our schools, and one that it did not originate; a custom that dates back for years, but which in common with other institutions that have pursued the same course, it now definitely agrees to abandon.

The Dental Department of the University of Maryland has, we believe, graduated but two classes, and as it is governed by the University regulations, it has, so far as we know, never granted its honors except in course. Sufficient evidence has been submitted to convince us that, in the preparation and forwarding for publication of the article in our June number, there was no collusion between members of its Faculty and the author.

Dr. Hopkinson has the satisfaction of knowing that his article has produced a most decided sensation, and wrought results that he could scarcely have anticipated. He has, we believe, never been connected officially with the University, and there is no evidence to prove that in writing his article he was prompted by other motives than those of love for his profession. It was the simple duty of every dentist to do what he could to break up a general practice that he believed to be wrong, and Dr. Hopkinson presented the instances with which he was most familiar.

The graduates whose names have been used received their diplomas upon precisely the same grounds that other good men have obtained theirs, and are certainly no more culpable. If they chose to leave the one school, whose honors could not be obtained save by spending more time than they felt they could afford, and go to another having less stringent regulations, it was their legal right so to do.

With any personal differences that may exist between the Faculties of the two institutions, neither our readers nor ourselves have, or desire to have, anything whatever to do.

CROWDED AGAIN.

Once more we are obliged to apologize to valued contributors for the non-appearance of their articles. So many of our most important societies meet during the spring and early summer, that the reports crowd each other and everything else. Although we have regretfully cut down the records far beyond what our desires have prompted, and have enlarged the size of the journal, we are yet unable to find room for the valuable matter that has been offered us. Next month a number of deferred articles will be printed, and we shall commence the publication of the reports of the annual meetings of the Pennsylvania and New Jersey State Dental Societies.

By the way, we desire to call the attention of our readers to the quality and quantity of our society reports. If any journal has presented as many valuable records of the transactions of important societies, it may take pride in the fact. It is not the publishers of the *INDEPENDENT PRACTITIONER* alone, who owe a debt of gratitude to the accomplished gentlemen who have made these reports, but the whole profession is under obligations to them for the presentation of much valuable matter.

A SHOCKING OCCURRENCE.

A most painful accident (if the results of criminal carelessness may be called accidental), occurred during the late meeting of the American Dental Association. Dr. W. R. Clifton, of Waco, Texas, an honored member of the society, was in attendance, and had brought from his distant home his only and motherless child, a bright little boy of about five years of age. The father left his little prattler at the hotel, and in one short hour its poor, broken, mangled, almost lifeless body, was placed in his arms. Accompanied by its nurse, the child was crossing the street, when a carriage, driven at a reckless speed, crashed upon them. The nurse barely escaped, but the little one was trodden beneath the feet of the horses. Surgeons were summoned, when it was found that the temporal bone was crushed, the lower maxillary and the clavicle

broken, besides other injuries. The skull was trepanned, and numerous portions of the bone removed, when the child recovered consciousness. Announcement of the accident was made in the Association, and a vote of sympathy with Dr. Clifton was at once passed, while the executive committee was instructed to engage physicians and nurses, and to extend to the stricken father every assistance possible. The speaker in possession of the floor declined to give way for a motion of adjournment, but so shocked were the members at the announcement that the meeting soon adjourned itself, through the members leaving the hall almost in a body. At the time of writing this notice all will be glad to know that, almost against hope, the child is in a fair way to recover, although it has been impossible to remove him from Saratoga.

P. S.—A letter from Dr. Clifton desires us to express his deep sense of gratitude to those members of the Association who evinced such tender interest in his great misfortune, to those who were called upon to render professional service, and especially to Mr. Clair, the proprietor of the Grand Union Hotel, who has been unremitting in his attentions, and unwearied in his kindness. An attempt will be made to remove the boy to his home about the first of September.

BLACK'S MICRO-ORGANISMS.

Just as the last form is ready for the press, we have received the above work. It is too late for review in this number, but it shall have due attention in the future.

We wonder what proportion of the profession will purchase and read this work from an acknowledged authority. Some time since, Dr. T. H. Chandler translated from the French two books of importance, and he has informed us that the most of the editions still moulder upon the shelves of the publisher. And yet, in grandiloquent terms, we have heard the claim boastingly put forth that dentistry, the latest born of fair Science, was the farthest advanced in technical knowledge of all her children. We hope the sale of this book may prove so. But there are too many of us who delight in scientific platitudes, who revel in high sounding, technical phrases, to which no definite meaning is attached, but who, when a calm

consideration of some segregated, technically scientific question is presented, take refuge in the denunciation of text-books, and a sweeping condemnation of theoretical speculation. For the credit of the profession we hope that this book will be generally purchased and intelligently studied.

PROTECTIVE ASSOCIATION.

It would seem as though dentists should have little to fear from patents obtained by perjury and fraud. But it has so often been the case that men who have used a device for perhaps a score of years, have suddenly found themselves confronted by an agent armed with a patent, and have been forced to pay a royalty upon their own inventions, that it is perhaps the best policy to resist such impositions at their outset. Patent lawyers are cunning and unscrupulous, and the Goodyear Dental Vulcanite Company taught us that when, by any means, collusive or otherwise, a few decisions in circuit courts have been obtained, it is hopeless to expect that new trials will be decided upon their merits. Every decision gained is a precedent established. The Richmond patents on tooth crown and bridge work now threaten us, and a protective association has been formed to fight them, of which Dr. W. H. Dwinelle is president, and Dr. J. M. Crowell, secretary. Dentists desiring further information may address either, at New York.

ROBINSON'S FIBROUS FILLING.

Among all the varied new preparations for filling teeth, that have within a comparatively recent period been offered to the profession, there is none that seems to have met with more general favor than Robinson's Tin. "Uncle Jerry" was so widely known and so generally esteemed, that when he announced a good thing it immediately challenged the attention of a large part of the profession. We think his Fibrous Filling has come to stay. It presents so many advantages that no intelligent operator can afford to be without it. It is so perfectly adaptable to the cervical walls of large cavities,

and gold unites with it so readily, that the dentist who does not make use of it in such localities is missing a good thing. Try it; you who desire to reach the highest point in operative dentistry.

AN APPEAL.

There must be hundreds of copies of the INDEPENDENT PRACTITIONER for August, 1883, and January, 1884, that their owners have no special desire to preserve. Our files of both numbers are entirely exhausted, and we are meeting with extreme difficulty in obtaining enough to supply new subscribers who desire to commence their subscriptions with the year. To any one who will mail to us either of the missing numbers, we will send a copy of Dr. Miller's work on "Fermentation in the Human Mouth," with other valuable reprints, or we will pay liberally in cash, if preferred. Will not our friends try and help us out?

NOTICE.

The Committee on Enforcement of the New York State Dental Law desire that the name of every one who attempts the practice of dentistry illegally shall be reported to them. Every dentist who is not duly registered in the county clerk's office of his county, or who is illegally registered, is liable to the penalty provided in the act. If he shall have commenced practice since June 20, 1879, he must register his credentials—either the diploma of the Dental Society of the State of New York, or that of some reputable college, *recognized as such by that Society*. WILLIAM CARR,

35 West 46th Street, N. Y., Chairman of the Committee.

AFFLICTIVE.

Although it cannot heal the wound, it may be some consolation to Dr. and Mrs. A. W. Harlan, of Chicago, to know that they have the deep sympathy of every member of the profession in their affliction at the loss of their oldest son, Allison Wright, who was drowned in Crystal Lake, August 19th. There is a great host of friends whose only regret is that they can do nothing but offer heartfelt condolence.

(20.) A boy of fifteen has not yet erupted his cuspids. The other teeth are in position, and the temporary cuspids were shed some timesince. There is an almost constant pain and uneasiness referable to their locality, and the prominence in the alveolus over their probable position is quite marked. There is abundance of room for them, but they seem unreasonably delayed, and their cusps have not yet appeared through the bone. What shall be done with the case?

DENTIST.

(21.) Will some of your contributors kindly inform me what causes the disease known as "pyorrhœa alveolaris?"

IOWA.

(22.) I have been told that there is a way of making new rubber stick to old plates in repairing cases, and I will consider it a great favor if some reader of your excellent journal will be good enough to explain the process of doing it.

M. S.

(23.) Some dentists are exceedingly particular about having the gum around a tooth thoroughly lanced before extracting it, while others never think of doing it, claiming that there is no necessity for using a lancet in such cases. I would like to get the views of dentists who have had better opportunities for deciding this matter than myself.

L. R.

(24.) What has become of the Chalfant case? I refer to the dentist who shot Josiah Bacon, in San Francisco.

A. B. C.

(25.) I am threatened with prosecution under the Richmond Crown Patents. Is there any reason why I should pay a royalty, and can the patent be sustained?

GOLD CROWN.

Write to Dr. W. H. Dwinelle, No. 15 West 34th St., New York.—EDITOR.

Answers.

NEW JERSEY (14.) Put in some kind of temporary stopping properly medicated, and *wait*—wait if need be a month, and ten to one the mass will die and admit of removal without trouble.

G. B., (15.) Yes. Remove the serrations of the permanent teeth in the mouth of young people. Smooth up the notched edges with an emery-paper disk.

C. F. M., (17.) Not absolutely "perfect." Practically solid would be a more "perfect" expression.

GARRETT NEWKIRK, Chicago.

In reply to C. F. M., in the Aug. No. of the "I. P.," permit a reader to state that many people have a peculiar way of expressing their views. They do not always mean *exactly* what they say; and moreover it has been whispered that some individuals exist who are prone to color their remarks with a thin coating of lovely-tinted-exaggeration.

H. M.

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The value of Listerine has been thoroughly determined by very many of the Dental Profession, and a pamphlet embodying its Formula and Reports from the following and many other well-known dentists will be forwarded gratis upon request and the mention of this journal.

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 GEORGE WATT, M. D., D. D. S., Xenia, O.
 H. A. SMITH, M. D., D. D. S., Cincinnati.
 A. O. RAWLS, D. D. S., Lexington, Ky.
 W. C. WARDLAW, D. D. S., Augusta, Ga.
 J. B. PATRICK, D. D. S., Charleston, S. C.
 T. W. BROPHY, M. D., D. D. S., Chicago.

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 JAS. TRUMAN, D. D. S., Philadelphia.
 T. H. CHANDLER, D. M. D., Boston.
 THOS. FILLBROWN, D. M. D., Portland.
 FRANK ABBOTT, M. D., New York.
 N. W. KINGSLEY, M. D., D. D. S., New York.
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To the Dental Profession.

GENTLEMEN :

After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

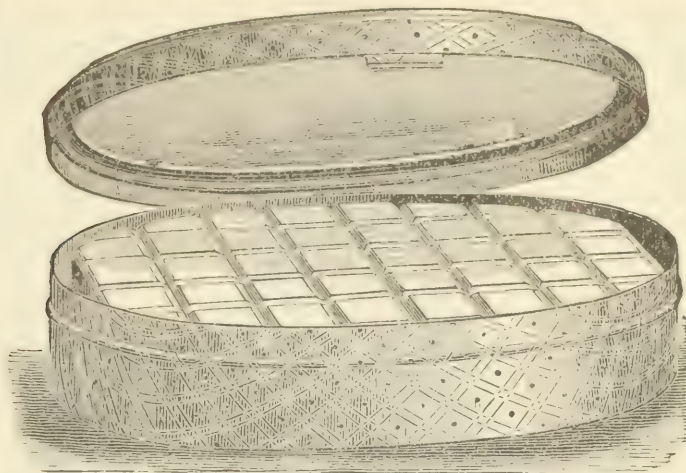
I. W. LYON, D.D.S.,

61 CEDAR ST., NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

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Heat expands metallic substances. When an alloy has been amalgamated in the palm of the hand the operator will observe that heat is evolved. Now, if this is allowed to depart (said Dr. Whildon Foster, of Baltimore, in criticism of an essay by us), if this heat is allowed to depart previous to its introduction into the cavity, it will not then contract; for crystallization at low temperature is not a process of contraction. A familiar example is the freezing of water and the consequent bulging and bursting of the containing vessel or pipe.

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| | |
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| DR. C. S. STOCKTON,.....NEWARK, N. J. | DR. WM. F. DAVENPORT,....." " |

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will be found superior to all foods. Ten per cent. of the Beef is peptonized,
which is sufficient to stimulate natural digestion.

"*Beef Peptonoids* is by far the most nutritious and concentrated food I have ever met with. Indeed, a palatable and assimilable and in every way acceptable article of food, containing nearly seventy per cent. of purely nutritive nitrogenous material, has never before, to my knowledge, been offered to the Medical Profession or to the public."

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We also manufacture the above preparation combined with HYPOPHOSPHITES OF LIME AND SODA.

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— IN —

SCARLET FEVER.

ITS INTERNAL AND EXTERNAL USE.

BY X. T. BATES, M. D.

Very recently several cases of Scarlatina have come under my care, ranging in severity from the very mild to the type S. Anginosa, in the treatment of which Bromo-Chloralum has played so important a part, and has been followed by so successful results that I am induced to believe that this agent, properly used, will materially lessen the death rate from this terrible disease, and also largely disarm this malady of its contagious character. I shall hereafter incorporate Bromo-Chloralum in the treatment of all Scarlatinal cases, while similar results attest its remedial value.

The *modus operandi* is perhaps, in part, susceptible of explanation by the fact that "Bromo" is a disinfectant prompt in its action. In cases where the patient's breath is foul, and the air of the room consequently made noxious and perceptibly impure, the influence of "Bromo" administered internally and as a wash for the throat and mouth, is soon felt in the removal, to a great extent, of the cause that operated to produce these effects. The same remedy should be exposed on cloths, suspended in the room and over the doorway, so that the air that passes into and out of the sick-room, to and from the adjoining rooms occupied by the family, must pass through, as it were, a "Bromo Strainer." In consequence of its power to arrest fermentation, and its purifying effect on the atmosphere in the sick-room, we are led to believe the disease aborts, and the air passing to adjoining rooms carries no longer a potent virus.

As a frequent wash for the mouth and throat, in such cases as call for topic measures, I prescribe:—

Rx. Bromo Chloralum, ℥ i; Water or Simple Syrup, ℥ vii.

M. As an internal remedy I give it in doses of gtt. ii to gtt. v, on sugar or in water every two hours.

The cases to which I have alluded all terminated favorably.

In no instance to my knowledge was the contagion carried beyond the pale of the afflicted household, and where it attacked other members of the family, the disease assumed a very much milder and more tractable form.

DR. BROCKETT, in the new edition of his work on contagious diseases, remarks:—

"This preparation is entirely free from caustic properties, has no odor of its own, and effectually removes all offensive odors where it is sprinkled, or cloths wet with it are hung up; its vapor has no irritating property even to the weakest lung; it is a thorough and perfect disinfectant, destroying not by corrosion, but by its antiseptic quality, all fungi and germs of disease; it is applicable in a dilute state to ulcers, sores, gangrened wounds, and catarrhal or other inflammations of the mucous membranes and the air passages, is an admirable gargle, and *if taken internally, has an alterative and stimulating effect.*"

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MALTINE (Plain.)
MALTINE with Hops.
MALTINE with Alteratives.
MALTINE with Beef and Iron.
MALTINE with Cod Liver Oil.
MALTINE with Cod Liver Oil and Pancreatine.
MALTINE with Hypophosphites.
MALTINE with Phosph's Comp.
MALTINE with Peptones.

MALTINE with Pepsin and Pancreatine.
MALTINE with Phosphates.
MALTINE with Phosphates Iron and Quinia.
MALTINE with Phosphates Iron, Quinia & Styrch.
MALTINE Ferrated.
MALTINE WINE.
MALTINE WINE with Pepsin and Pancreatine.
MALTO-YERBINE.
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| “ “ Plug Finishing | 8.00 | “ | 6.40 |
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The S. S. White Dental Manufacturing Co. has reduced the prices of Nickel-plated Forceps and Wedge Cutters, and made many changes in their list of Cone-Socket Instruments (mostly reductions).

☞ For details, see the August (1884) issue of the *Dental Cosmos*.

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Philadelphia. New York. Boston. Chicago. Brooklyn.

THE

Independent Practitioner.

VOL. V.

OCTOBER, 1884.

No. 10.

Original Communications.

HERBST'S NEW METHOD OF FILLING TEETH.

BY DR. W. D. MILLER, BERLIN, GERMANY.

The method of inserting gold fillings strenuously advocated by W. Herbst, of Bremen, during the last half decade, is sufficiently well known to the profession to render a detailed description unnecessary. This method is especially characterized by two features. The first of these is the extensive use of the matrix for approximal cavities, the second the employment of a rotating, smooth-pointed instrument for condensing the gold.

The operation may be best made clear by describing a case in practice. We have to fill the left upper bicuspid, both decayed on the approximal surfaces. The cavities are opened to the grinding surface and prepared as for inserting a cohesive foil filling, with exception of retaining points, which are never made. The matrix is now brought into place, and the point of a steel pin inserted between the matrix and first bicuspid from the buccal side, and if necessary from the lingual side also, so as to press the matrix tight against the surface of the second bicuspid at the neck; warmed shellac is now packed into the cavity of the first bicuspid, to hold the matrix firmly in position. After the cavity of the second bicuspid has been filled, the shellac and matrix are removed, a second higher (wider) matrix inserted and pressed by the same

means as before, tight against the surface of the first bicuspid, which is then ready for filling. Should the second bicuspid be wanting, then the matrix is held in position by filling the whole space between the first bicuspid and the first molar with shellac. The matrix being in position, three or four cylinders of Wolrab foil No. 2, 3 or 4 (or an equivalent of Wolrab foil No. 4 made into pellets) are brought into the cavity just as they would be into a simple cavity on the grinding surface, and fixed into position by pressing tightly upon them with one of the larger burnishers of the set, slowly rotating. It is then condensed by a succession of strong taps or pressures of the rapidly rotating instrument No. 5.

(The surface of the instrument soon becomes coated with gold, which must be removed by pressing it while rotating upon a piece of pure tin.)

This is then followed up by an ordinary hand plugger, to ascertain whether the gold has been properly condensed at all points. The above process is repeated till the operation is completed, the surface of the gold at last being thoroughly condensed by means of one of the smooth polished instruments of the set.

In filling large cavities on the grinding surface, first two, three, or four cylinders of No. 1, 2 or 3 Wolrab foil are pressed against the bottom of the cavity with the pliers, and then with one of the *polished* instruments, *slowly* rotating, fixed in position; if it does not at once become firm, more gold is put in till it does; it is then condensed with No. 5, *rapidly* rotating, and this instrument is then used almost exclusively till the gold is all in; then No. 1-4 or 7 is used for condensing the surface.

Approximal cavities in the central incisors are treated as follows (previous separation by means of cotton having been secured): The cavities are prepared slightly broader at the bottom than at the opening; no retaining points are required. Two or three cylinders of No. 2 Wolrab foil are pressed into the first tooth towards the gums, likewise into the second tooth, and condensed with No. 5; this process being repeated till both cavities are overfilled, so that the gold in the two fillings appears to form one continuous mass.

Then No. 15 (a clean, fine needle), slowly rotating, is pressed through between the filling at different points, and the separation

completed with a fine file. The fillings are then further condensed by Nos. 12–14, rapidly rotating, with interrupted pressure.

The advantages claimed for the Herbst method are: 1st. Rapidity of operation. This comes particularly into account in proximal fillings, which can be inserted in much less time than is required by either the hand or electric mallet.

2d. The injuries frequently done to frail tooth structure, as well as to the pericementum by the use of heavy mallets, of course are entirely avoided.

3d. The equally baneful necessity of weakening or sapping a tooth by large retaining points is also done away with.

4th. The operation is less disagreeable to the patient than that by the mallet method.

Perhaps the most valuable feature of any method is the ability to produce by it fillings which shall be perfectly adapted to the walls of the cavity, and in this respect the Herbst method seems to promise success.

A number of fillings made by Herbst, with the time occupied in the insertion of each, were sent to me with the request that I would give them a thorough examination. For this purpose I caused similar fillings to be inserted in the same time by the hand mallet and by Telchow's Pneumatic Mallet. The teeth were then immersed in an alcoholic solution of fuchsine and allowed to remain twenty-four hours; at the end of this time they were split, and it was found that Herbst's fillings had resisted the penetrating power of the liquid better than the others; *i. e.*, they made better contact with the walls of the cavity than those inserted by the other methods. Herbst makes use of gold cylinders prepared by Wolrab in Bremen, a preparation which works, in the words of an old operator, "like mush."

How far his success is to be ascribed to the admirable qualities of the gold I do not know, nor is it possible to say how his fillings will stand the test of time.

This much, however, we may safely say, that his method has shown itself to be deserving of a thorough investigation, and it is particularly desirable that American operators should make themselves acquainted with it.

Cuts of the instruments employed by Herbst may be found in the number for February, 1884.—EDITOR.

A VISIT TO THE DENTIST.

BY ONE WHO HAS BEEN THERE.

“’Twas midnight’s holy hour,” and the great city, with all its burden of humanity, slept in peace. The pale moon rode the heavens in serene majesty. The stars looked down from their blazing thrones, and mocked the darkness. Great Orion was hunting with his dogs, and the seven Old Maid Sisters simpered at the unimpressible Hercules. Suddenly a cry tingled upward to the very vault of the sky, and re-echoed through all the arches of the empyrean—a cry which was like the agony of some strong soul in martyrdom—which voiced volumes of unutterable anguish—which spoke of rending heart-chords and snapping tendrils of the soul—a cry at which the shadows shuddered, the earth trembled, great Jove stared, and the rat-terrier howled piteously to silver-horned Diana.

Was it the crack of doom? Was it the day of dissolution? Was it the death-cry of one of the Immortals, which pierced through the shivering air, and shrieked through the silent streets, and awoke with its accents of woe the slumbering thousands from balmy slumber to acute sympathy for some appalling catastrophe? No! no insignificant matter like this, no such bare and pitiful circumstance sent such a pang through and through Mother Earth’s bosom, and struck the babies like a cataclysm of green apples and cucumbers. It was something more portentous and tremendous in the awful and terrific consequences to the universe, and to humanity, and to Jones! For Jones had the toothache! Of all the somniferous millions peopling this degenerate planet, Mrs. Jones first became aware of the pitiful calamity as Jones bounded from the bed and came down on some freezing oil-cloth, clasping with both hands the cheek which enclosed the jumping, demoniac snag. And then all the other Joneses awoke. The baby was barely saved from an attack of catalepsy, and Bobby, who had been reading Buffalo Bill’s thrilling romances, yelled in his sleep as he dreamed of the war-whoop of the Sioux, and felt their scalping-knives, and the whole household could not have been thrown into greater consternation, from centre to circumference, if some nihilist had blown them up with dynamite. And as for Jones, alas for all the weight of woe which the primal curse has brought upon the ruined race! Do not the prob-

lems of suffering, and the mystery of sorrow, and the crushing questions of sin and anguish which have baffled and oppressed the wisest for ages, become at times almost intolerable? There are crises in the history of every individual, when he is brought face to face with the great sphinx-like enigmas of life and its terrors, when life seems not worth the living, when earth is but a vale of tears, and any existence worse than none! Such a moment of destiny, upon which all his after years might turn, had come to Jones. He became suddenly and poignantly aware that living was not a jest; that our being must be something more than a terpsichorean feast; and as he danced around in the darkness, with the thermometer at zero, and barked his unprotected shins upon the furniture, Jones realized in all its profound solemnity that life was real, life was earnest! Jones was a pillar in the Hard-shell Baptist Church, and believed in foreordination, and predestination, and the perseverance and preservation of the saints, and his language on this memorable night was framed on the most orthodox models of the emphatic language of the strictest theology. It might not have sounded quite euphemistic and Chesterfieldian—it might even have had its Christian consistency questioned by some truly blue council of investigation—but there was no mistaking its significance. There was no doubtfulness about the utterances, such as characterize the words of the agnostic; there was a simple directness about it which avoided the weakness of all circumlocution, and expressed itself as pointedly and fervently as does eloquence in all ages. And Mrs. Jones, though horrified, was self-possessed enough to give her emphatically worse-half a piece of her mind. Jones was very glad it was only a piece, and not the whole, and trembled before the imagination of the remainder. But Jones himself was in no mood for jocularity. He felt the desperation of his circumstances, and yet he was conscious that, just as he was, he was hardly the figure for a heroic bust in marble. But Mrs. Jones was equal to the emergency. She always was. Jones had too often felt her guiding and shaping hand directing the current of his history, ever to doubt the competency of his wife. With some ejaculations peculiarly feminine she set to work in the cold to prepare a poultice, while her maniac husband shrieked at her slowness and cursed the man who first invented teeth. But Mrs. Jones was fearfully agitated by the gravity of the occasion, and by the precipitate cries of her

husband, who felt that the emergency called for action, noble, sublime, godlike action, and in her haste the poultice was prepared so scalding hot that it blistered the cuticle of her good man by the time it had touched it. Ye who have seen the noble rage of the Spanish bull, pricked to exasperation by arrows and javelins; ye who have heard the mighty roaring of the caged Nemean lion as the old fat women have poked him with umbrellas in the circus, can but feebly imagine that howl of indignation, a sense of insult added to injury, as Jones executed a leg-movement which would have made a South Sea cannibal grow greenery-yallery with envy. There was a time in the halcyon days of lang-syne, in the coy and callow period of ecstatic youth, when Jones loved his wife, his heart's first choice. There was a time when he called her beautiful; a time when the appendix to the Great Unabridged, with its additional collection of endearing epithets, would have filled a long-felt want, as the giraffe said when he took a drink down through his mile of gullet. But so fades love's dream away; on this night his language could, on hardly any construction, be considered complimentary. It was more than merely negative; it was quite positive in its dialect of unappreciation. And Mrs. Jones thought that an extra bright diadem ought to be decreed to her for restraining her righteous anger under such a load of provocation. So she mildly apologized, and made a modest suggestion of toothache drops. A generous supply of the liquid was put into his mouth, but as it trickled and meandered down his esophagus it was a sight for gods and men. Jones acted like one of the ancient oracles who presided at the temple of Delphos, and his wife fled before his insanity only to be recalled in thundering tones with a demand for liniment. Perry Davis was speedily and tremblingly introduced, and without thought a dilution of that noted gentleman was applied to the already blistered surface of the face. Jones gasped at this next horror, for he was already exhausted. The climax was capped. He sat down upon the bed with smothered groans, like a man who had met his fate and mastered it. He would have come down to us, had he lived in those ancient times, as one of the grandest of the stoics. It is a consolation, in the direst extremity of our woe, to know at last that the worst possible has happened. We derive a comfort from the very absoluteness of our misery. Thus was it with Jones. He felt that he had touched bottom. He defied the gods to do

their worst. He could smile at all their thunderbolts, like Prometheus chained to the rock and refusing to yield, though the vulture gnawed at his vitals.

At last Mrs. Jones ventured to say, timidly and laconically: "Why not have it out?" But this cutting of the Gordian knot did not especially commend itself to the sufferer. There are feelings in this world! Sentiment is not a thing to be made light of. The man who implored the woodman to spare that tree might not have been much of a poet; he may have been a namby-pamby individual, used to the melting mood, and dropping tears as fast as the Arabian tree its medicinal gum, but after all his heart was under the proper side of his vest. We dislike to part with old friends. It was a severe trial for that Congressman whose term had expired, when in a Washington boarding-house he was compelled to approach a venerable mackerel that had appeared so regularly upon the table, and take it gently by the tail for a farewell shake, as he tearfully exclaimed: "Good-bye, old mackerel! good-bye! The best of friends must part! This is a world of sorrow, where longest friendships must be ruthlessly severed! Good-bye, dear, old mackerel, good-bye!" And who, that has a spark of veneration in his bosom, can contemplate unmoved and unaffected the departure of some ancient molar that has seen our growth from youth to middle-life, an essential part of our existence; that has shared in the checkered scenes of our probation here below; that has by strict attention to the business of mastication filled its humble place duly and well, feeding stomach and brain, and keeping life and courage in the body; who can regard the taking away of such an integral and intimate part of us without a sigh of regret, tearful and deep? It is like losing a part of our identity. Something of self-consciousness seems to depart with it. We have a love for it which is a part of our ever-present self-love. And so Jones entertained some decided objections.

And is there not something in the loss of the teeth, one by one, which suggests too forcibly to be pleasant the final rack and ruin which shall befall the whole tenement of clay? The first visible intimations and potent arguments of our mortality, the first prophecy and proof of the oncoming dissolution is found there. Then first, the shadow of death is cast over us, and we blanch to think that even so every bone, and cartilage, and muscle, and tissue shall decay,

and the edict, "Dust to dust," go forth. Then first we shrink from the grim spectre with the scythe and cross-bones, as he sits on his throne of an extracted grinder and grins horribly as he cries: "Bye and bye I will make thy skull my seat." I cannot vouch that Jones went over all these sentimental considerations, but he was certainly solemn enough to have been cogitating on death and the final judgment.

By the time morning came, Jones emerged from the house pale and haggard, like a man who had just seen his tailor, or whose wife has presented him with twins. But there was a look of grim resolution in his face, as though he could meet, if need were, the very inquisition itself, with all its screws and stakes. He had seen the glaring advertisements of a dentist whose prices for strictly first-class filling were somewhat less than John Chinaman's for shoveling dirt. He seated himself in the chair with the cold comfortableness of one who has his life insured and his will made. And there ensued such a chipping, and scraping, and boring, and drilling, and rasping of nerves, that poor Jones prayed that he might depart in peace. Great drops stood on his forehead, and he writhed like a poor victim of hydrophobia. He saw whole constellations by daylight, but there were no angels in those heavens. He would have howled like the dog that bays at the moon, but Jones was a Christian and he reflected that even an old pagan philosopher would have kept silence in grim endurance. And so the plugging, and hammering, and tapping, and filling went on, and Jones felt that he was but a pilgrim here, and sighed, "Vanity of vanities, saith the preacher, all is vanity." On the theory of skim-milk here and cream in heaven, the more misery here, the more happiness there, the more groans here, the more laughter there, Jones thought that he ought to deserve a reserved seat above, and have all the houris of the Mahomedan paradise. And as that dentist flourished files and borers above him, and stretched his cheeks and lips, and pried his jaws to an enormous extent, and punctured his gums and struck corruscations of phosphorescence through his brain, and occasionally, by way of an interesting variety, sent his prong into the nerve of the eye-tooth, Jones wondered why it had never occurred to the religious imagination to represent horned and hooved Beelzebub with forceps and plugger! But at last the contortion ended and the extortion began, for so Jones regarded it. He thought that that

operator had had enough diabolical enjoyment out of his acute misery to fully compensate him.

So Jones went home to the bosom of his family, a perfect representation of Patience come down from her monument, where she had been so long industriously smiling at grief. His wife jested him on his woe-begone aspect, but he was in no temper for the excitation of his risibilities.

Then he betook himself to balmy slumber, nature's sweet restorer, who is in the habit of knitting up the raveled sleeve of care. But balmy slumber didn't have any knitting-work on hand that night; not to any very great extent. For, scarcely had Jones retired with the sublime self-consciousness that there were few men in the whole universe that night who drew comforters over such a virtuous form as his, when twitch, thump, that nerve got away with forty strokes to the minute. There are only forty thousand adjectives of all descriptions in the English language, and few men have a corner on them all, but it would have required the marvelous descriptive powers of a Micawber to correctly delineate the scene. Was Bedlam loose? Was Pandemonium come up to earth? Jones was, on religious principles, opposed to dancing, with the exception of such stately and decorous steps as David executed before the Ark, but the way he pranced forward and backward, balanced, chassézed, corners to middle, gentlemen to partners, all hands 'round, in quadrille, schottische, polka and german, would have shocked his fellow deacons into dumfounded horror. Then he remembered what Plato had said, that there were times when, and persons to whom, it were better to die than to live, and he reached for his hip-pocket. But the caps snapped, and after several ineffectual attempts to scatter his brains he cooled down, as his wife, who had surveyed the scene with speculation in her eye as to No. 2 and another bridal trossseau, sarcastically remarked, "It's no use, Jones. I wouldn't try again. You haven't got any."

So she dosed him heroically with morphine, and he was soon snoring like the seven sleepers of Ephesus all put together. But with morning the purgatory was re-enacted, and Jones, weary with suffering, began to look around the eyes like those who tarry too long at the lemonade with a stick in it.

But this time he resolved to spare no expense, to stop at nothing short of half his kingdom, but to patronize a man who knew his busi-

ness, and "knowing, dared maintain" a decent charge. So he stepped into Mr. Timothy Tendertooth's office, and thus addressed him :

"Is it possible for you, sir, to pull a tooth without lifting a man out of your chair to the seventh heaven of unutterable agony, and hold him suspended on the end of your key-wrench while you dangle him between the sky and the earth and mop the floor with his hair, or beat the carpet with his legs? Is it possible for you to relieve a piece of wretched human flesh and not leave him as if a cyclone or a mule had entertained him unawares? Is it possible for a man to go through your hands and not find himself in some future state of existence, the exact locality depending much upon his previous life?"

The dentist's smile was childlike and bland. And soon Jones was under the sweet influence of the nitrous-oxide, delicious intoxication. He dreamed of the glorious freedom of his bachelor days, and that mothers-in-law were a lost art. He dreamed that he was a boy again, stealing apples as of yore, and he forgot that he was a deacon as his features smilingly relaxed. He dreamed that there were no more gas bills, no more lightning-rod agents, nor book canvassers, nor life insurance solicitors. He dreamed of that coming Golden Age when there shall be no more political jobbery, when the aldermen shall be superintendents of Sunday schools and the mayors shall lead class meetings, and the pickings and the stealings shall belong only to the elect. He dreamed that he had realized on his corner lots, that his mining stock had gone up out of sight, that his minister had piously resolved to preach thereafter only an hour. He dreamed that he ascended to heaven, and that St. Peter let him in without any cross-questioning, and that the chief occupation of the angels there was to immerse those who had only been sprinkled on earth. Just as he was about to sit down upon a flowery bank and sing himself away to everlasting bliss, he awoke from his sweet delusion, returned from his elysium to find himself still chained to existence in this mundane sphere, still seated in the dental chair with a benediction radiating over him and a great ivory root triumphantly displayed before him. And the doctor soothingly assured him that a more beautiful and serviceable one could be felt into the place that once knew it but should know it no more forever.

And when he felt that all his agony was over, hope again sprang

exultant in his breast; the interest of life with all its variety and vivacity returned like a flood-tide. He had begun to love not man nor woman either, but now his fellow-beings never seemed so noble and amiable to him. He felt that he could mingle again with the great tides of existence, and secretly vowed as a thank-offering a new seal-skin to Mrs. J.

Then he delivered himself of the following eloquent panegyric: "Respected and honored Sir! To you I owe life, liberty and the pursuit of happiness! To you shall I look as a friend and helper in one of the direst emergencies and extremities that ever befell my lot. My remuneration to you utterly fails to express the tons upon tons of gratitude—1200 lbs. full coal weight, net—which I feel for you. I shall remember you to my dying hour, and expect to see as good a man as you in Eden's rosy bowers. If I should ever get to Congress I shall have you appointed inspector of hydrants. It may not be that teeth shall ever ache in the future, but it is a principal part of my anticipation of the happiness beyond to see you and your gas-bag on the other shore.

"Sir! you belong to a noble fraternity! You take your place in the ranks of great philanthropists and humanitarians who have helped to save life or alleviate human misery! What were this life but a bitter struggle with the inevitable, what were our breath but vanity, what were all our labor but sorrow, were it not for men like you? An aching tooth, a shooting nerve, is a little thing like a thorn in the flesh, but it has power to afflict the soul and make our being a miserable thing.

"Sir! Go forward in a great career! May your shadow never grow less; may your fame never diminish; may your receipts never decrease. To-morrow I will send Mary Jones to have all her teeth out, and dream twenty-six times all the nice things that I have, and then while you are making a new set she can't talk for a month. And that will be heaven for me!

"Sir! Farewell! May the blessings of your contemporaries attend you. May you inspire new hope in posterity!

"Devote yourself entirely to your grand profession and you will not live in vain, and when you die the recollection of the hundred thousands of teeth you have pulled and filled will sweetly console you! Respected Sir! In the words of another, go on unto a great future! Be like an eagle and soar, and the sorer you get the more we shall be gratified!"

AMALGAM.

BY S. C. G. WATKINS, D. D. S.

READ BEFORE THE NEW JERSEY STATE DENTAL SOCIETY AT ITS FOURTEENTH ANNUAL MEETING, AT ASBURY PARK, JULY, 1884.

There is an article used by the Dental Profession to a great extent which has received much condemnation, and yet hundreds of the practical men in our profession who have patience and skill—the time, the courage and the honor to do good and careful work with a material less dazzling than gold—look upon Amalgam as a God-send to the dentist and the patient. Some have condemned it to such a degree that they have put themselves on record as the lamented Dr. Webb did, when he said before the First District Society in New York that “he had not used Amalgam for six years, and would not use it again as long as he lived.”

This reminds me of a doggerel verse that I found in a dental journal some years since :—

“ But when it came to fitting the stump
With a proxy limb, then flatly and plump
She spoke in the spirit olden ;
She couldn't, she shouldn't, she wouldn't have wood,
Nor a leg of cork, if she never stood,
And she swore an oath, or something as good,
The proxy limb should be golden.”*

So Amalgam is discarded entirely, and by the golden enthusiast it is insisted that if a tooth is worth filling at all it is worth filling with gold, and perhaps they put upon their cards “nothing but gold used,” thereby ignoring the other materials, especially Amalgam, which, by careful manipulation, may prove so useful and beneficial.

Many of the advocates of heavy gold disapprove the use of Amalgam. They put heavy gold in all kinds of cavities and teeth, malleting with almost force enough to break down a prison door, and building up the contour over frail walls. What condition must the weak structure be in after such treatment? And again, one-third of the good tooth substance is cut away in order to get at the cav-

* The quotation is from Thomas Hood's “Miss Kilmanugg.”

ity so that gold can be malleted home, as it is claimed that all gold should be malleted, even the first piece; they must either place the gold in the cavity without seeing just where it is put, and not be sure that the cavity is well filled around the cervical wall, or else cut away an unnecessary amount of good tooth substance. Undoubtedly Amalgam is preferable in either of these cases.

Much of this radical gold furor, I firmly believe, arises from a pecuniary motive. The idea is prevalent that gold is more valuable than the other metals, therefore fillings made of gold are more valuable than those made of other materials, and gold fillings are inserted without regard to the anatomical or physiological condition of the teeth; many cases exist where a large gold filling would be positively injurious, causing the death of the pulp, discoloration of the tooth, abscess, loss of tooth, or necrosis.

The insertion of large gold fillings in molars is so wearing upon both patient and operator, and so expensive, that the patient is completely disheartened, and refrains from visiting a dentist again for several years, the result being that there is positive loss, both to patient and operator. Amalgam would be much better in such cases. Our practice to be successful must be based upon a sound philosophy; that is, upon the knowledge of those principles and laws that govern the materials or agents with which we operate, and also those upon whom we operate. We fill teeth that we may arrest decay, prevent pain, assist in mastication, preserve the anatomical contour of the face, lend help to the vocal organs that they may produce certain sounds, as well as to earn a livelihood for our families and a reputation for ourselves. If the circumstances under which we fill teeth are favorable they will greatly assist us in bringing out good results, and the opposite will do much to retard, unless there shall be brought to bear such helps as will completely neutralize all opposition. The first thing to consider in the filling of teeth is the condition of the case in hand, through a faithful diagnosis. To diagnose a case for filling we should notice the condition of the structure, whether healthy or unhealthy, its location and its importance to its possessor. When its unhealthy condition is changed to a healthy one and all decayed matter removed, cavity shaped, walls formed, edges trimmed and polished properly, we are ready for the filling. Now the question arises, "What shall I fill with?" After a careful and conscientious examination of the surrounding

circumstances I should a few years ago have said gold, in most cases, like a good many of my friends in the profession. I received my dental education at the Boston College, and many prejudices against Amalgam were inculcated into my training, and they were generally entertained at that time by most of the able men of the profession, very few having the courage to acknowledge that they used it, or to defend its good qualities. I have seen several cases where Amalgam has stood the wear and tear of forty years. And again, I have seen beautiful gold fillings from the hands of our most skillful operators fail under favorable circumstances.

With regard to the different kinds of Amalgam, there is little use in speaking. I prefer the alloys of Hood of Boston, Lawrence of Boston, and Dawson of New York. I have used these Amalgams with great success in all conditions of cases in molars. In some cases I have built up the whole crown, where there was but a small rim of the enamel and the roots were hollowed out like funnels. Many would have condemned them for extraction; others, passionate builders of gold crowns, would have persuaded the patient to endure the prolonged operation and pay for it in proportion. Such teeth, when properly prepared and filled, with the Amalgam thoroughly impacted, are good for many years of service without periostitis setting in as soon as the work is completed, which in many cases would be the result after such a cavity had been filled with gold. The worst thing that can be said against Amalgam is its color, and that in two of the varieties which I have named is not very objectionable for the molars.

Unfortunately, we are not all born wealthy. Some cannot pay for gold fillings. Others are not willing to pay for them under all circumstances; and again, some have not the physical strength to endure the insertion of a large gold filling in the posterior surface of a molar, or in many cases in the bicuspid, and sometimes a very small oral cavity will prevent. There is a class of cavities which I particularly wish to call attention to; viz., posterior approximal cavities in the molars, or where a posterior and an anterior approximal come in close contact. In such cases most Amalgam fillings are failures, not because of any fault in the Amalgam or any fault in the tooth structure, but on account of gross carelessness on the part of the operator. In all cases of approximal fillings, whether of gold, amalgam, oxy-phosphate, or gutta percha, the

rubber dam should be placed upon the teeth, the cavity properly prepared with under-cuts from all sides where there is sufficient tooth substance to warrant it, and the periphery thoroughly trimmed and rounded, so that there will be no frail edges, especially cervical-approximal. Then the cavity should be washed out with either an antiseptic or an embalmer. Prof. Mayr's theory is that bi-chloride of mercury, or corrosive sublimate is the best antiseptic we have for such cases, as in very small quantities it will thoroughly destroy the bacteria, while pure carbolic acid, as we have known for a long time, will embalm the bacteria by coagulating the albumen in the canaliculi, thereby sealing the entire surface and preventing the lower organisms from forming under the filling, thus causing decay. For the same purpose, some prefer the thin gutta percha varnish, or copal-ether varnish, which answers a very good purpose if care is taken not to allow it to remain around the periphery of the cavity. In large quantities it is sometimes well to more than half or two-thirds fill with oxy-phosphate or oxy-chloride of zinc, allowing the filling to extend cone-shaped in the centre, leaving space for the Amalgam to be placed upon the top of it.

The Amalgam should be mixed very dry and placed in the cavity in small particles, and thoroughly packed around the walls with the same care that is necessary in gold filling. If the Amalgam is so dry that it is difficult to work it, the instruments should be heated so that the material will pack more thoroughly, and draw most of the mercury to the surface, when it can be wiped out. When the tooth is thoroughly filled, with suitable instruments made very thin and curved to suit the different cases, trim away all excess of material till you come to the perfectly filled edges of the cavity, then draw back and forth over the filling bibulous paper folded three or four times, or fine linen tape. By so doing you will make smooth surfaces, and fill any imperfection which there may be, leaving the filling exactly flush with tooth substance. Some claim that they can fill such cases properly without the dam, and finish up the surface perfectly with silk floss drawn back and forth over the filling and under the edge of the gum, thus removing all excess of material. This I claim to be impossible if the Amalgam has been properly condensed. Many cases that have fallen under my eye are found to be filled too full, the amalgam projecting beyond the

edges of the cavity, in some cases the filling extending beyond the cervical wall an eighth of an inch, sending out ragged edges from all sides excepting the grinding surface. I have a number of such fillings in my possession which were inserted by some of the good men in our profession, and some by those not so promising. After turning out such work is it any wonder that Amalgam is thus denounced, and all praise and glory given to gold? When I see such fillings I cannot help but feel that the dentist charged but a dollar, and then was afraid that he was giving his patient a dollar's worth. In preparing cavities for amalgam fillings in the grinding surfaces, a mistake is often made by not cutting out the small fissure decay all the way to the end, in which case the decay extends, and it is not long before the tooth requires refilling. Sometimes in filling such cavities the Amalgam is allowed to project beyond the cavity, and overlap the enamel, and in a very short time it chips off and leaves ragged edges to catch the food.

Again, I find Amalgam an excellent material to partially fill a cavity in the posterior surface of the bicuspid or molars, and then cover with gold. I place a very thin band of copper around the tooth and ligate it well with floss; it being very soft, the floss will draw it close around the neck of the tooth. If the tooth is so shaped that the copper will not give to it, you can burnish it down to the cervical edge so as to get a perfect contour. Mix the Amalgam very dry, and pack so as to condense thoroughly, until the cavity is about three-quarters full; then cut away the filling until it is about one-half full, and finish with gold. The first few pieces will be embedded in the Amalgam, and you can build from that and form your contour perfectly. When the copper matrix is removed you will find very little trimming to be done, and in my opinion it will be a better filling in that position than if it were all gold. In filling children's teeth, the temporary as well as the six-year molars, I find Amalgam invaluable. When a child is nervous and impatient it is difficult to keep it quiet long enough to use any other material; again, the density of these teeth is not as great as in the teeth of older persons, therefore gold should not be used in such cases, and this much abused amalgam is better than any other preparation for such cavities in the crowns and approximal surfaces of the molars.

The rubber dam is an invaluable agent in the insertion of Amal-

gam fillings, although many claim that its use is not necessary; but I have noticed in my own fillings, as well as those of others, that the most durable and best were those where the dam was used. My patients often remark to me that they have never had the dam used for such fillings, and it is a rare thing to see a perfect approximal filling made of Amalgam for this very reason.

A CASE IN PRACTICE.

BY DR. C. H. ECCLESTON, OXFORD, N. Y.

Some three months ago a young lady, aged about seventeen years, healthy appearance, but nervous temperament, called to consult me in regard to her superior central incisors. I found upon examination that nearly all of the front teeth, upper and under, were affected with *atrophy*, which gave the teeth a shriveled appearance on the cutting edge and about one-third of the crown, the superior centrals being the most affected, as about one-third of the crowns were gone, as though cut off with cutting pliers while in a soft state. They presented no decay of consequence, but had irregular, discolored grooves and numerous indentations on what would be the cutting edge, but none on the remaining portion of the crowns. To make the case more complicated, the left central overlapped the right. The first step taken to restore the defective centrals was to file the cutting edges down to a surface and marginal edge with the remainder of the crowns. This done, an impression was taken to obtain a model to which porcelain points could be made. The porcelain points were not made solid, like ordinary tooth points, but hollow and slightly undercut (rather delicate work), to retain the cement used to attach them to the natural crowns. To attach the porcelain points I prepared the natural crown in about the manner I would for building down the points with gold, viz: burring in a cavity across the whole width of the crown, about one thirty-second of an inch deep, with a slight undercut, when I adjusted two gold retaining screws for each crown, one on each side of the nerve center, allowing the screws to project enough to reach nearly to the bottom of the hollow porcelain points. In this case I used phosphate filling to attach the porcelain points, in about the same manner as in

ordinary pivot tooth setting. As to the durability of such work as compared with building down with gold, I am unable to say; it certainly looks much better, and is not noticeable except to a critical eye.

We have casts of this case, and they indicate a very neat and successful operation. Dr. Eccleston, a practical tooth manufacturer, carved new tips to exactly restore the lost contour of the teeth. They were attached as described, and thus the unsightliness of gold restoration was avoided. Those who desire to do such work and have not the conveniences for manufacturing any desired restorative in porcelain, could have that part of the work done by Dr. Eccleston. He has been our *dernier ressort* for nearly twenty years.—EDITOR.

A WANDERING SUPERNUMERARY TOOTH.

BY E. S. TALBOT, M. D., D. D. S.

The following case, noticed by Prof. E. Fletcher Ingals, is of uncommon interest:

“Recently, in examining a patient who had for some time been troubled with nasal catarrh, I found on the floor of the left naris, four centimeters back from the nostril, a hard substance, feeling, when touched with the probe, like bone. On seizing this with forceps the patient experienced severe pain, like that caused by striking a sensitive tooth, and for several hours afterward he suffered from pain like a severe toothache.

“The pain caused by touching this body was so exquisite that it was necessary to produce complete anæsthesia before a thorough examination could be made.

“Dr. R. H. Lull administered ether for me, and I then engaged the foreign body in the snare which I use for nasal tumors, and drew it out, when it was found to be a supernumerary tooth, resembling closely the canine, and measuring two centimeters in length.

“About five millimeters of the tip of the root had been exposed in the nasal cavity, and below this the tooth was covered with soft tissue, which was adherent to it down to the crown. The dentine of the crown was perfect, excepting a small perforation at its apex, but within the tooth was decayed.

“How long this tooth had been projecting into the nasal cavity could not be determined, but it must have been a considerable time, for the portion of the apex of the root which was uncovered had lost by erosion about a millimeter in thickness from its entire circumference.

"It is comparatively rare for teeth to grow in the roof of the mouth or nasal cavities, yet several such cases have been met with. In nearly all instances the 'wild tooth,' as it is called by the laity, is found to be a supernumerary tooth, or a misplaced canine."

We were invited to examine the patient through Dr. Ingals. We found him an American, æt. 19, a book-keeper by profession. The superior maxillary was somewhat contracted, the anterior teeth overlapping and projecting at the median line. The roof of the mouth was high posteriorly, the alveolar process and mucous membrane thickened anteriorly. From the appearance of tartar and green stain upon the apex of the crown, it must have occupied a diagonal position in the hard palate, the crown being in the roof of the mouth, pointing toward the central incisors, and the apex of the root in the naris pointing posteriorly. A ring of tartar encircled the crown from about three millimeters below the upper surface to nine millimeters above the lower surface, and that part of the crown below the ring was covered with a fungous growth, which proved that that part only was exposed in the mouth. The tooth had decayed, because of the imperfectly formed apex of the crown, until the pulp had become exposed and death resulted, causing alveolar abscess, the sack of which came away with the tooth. The formation of the abscess causing pressure upon the hard palate, together with the burrowing of the pus through the palate, produced necrosis of the same. The pressure of the tongue upon the crown of the tooth forced the apex through into the naris.

UNUSUAL CASE OF CLEFT PALATE.

An interesting case is reported by A. Ernest Maylard, which was observed in the Infirmary of Glasgow. (*Lancet*, Nov. 24). The child, a male, aged four months, was found to have, besides a left hare-lip, a division in the alveolus immediately behind it. This extended directly backward and widened into quite an interval, but did not deviate toward the median line. On the opposite of the hard palate another parallel cleft existed, exactly in a corresponding situation. The structure between the two was about one-fourth of an inch wide, and was continued into the posterior wall of the pharynx. It was bony in structure. A bony septum seemed to extend upwards from it, as a probe could not pass in one cleft and out the other, bony resistance being met.

Reports of Society Meetings.

AMERICAN DENTAL ASSOCIATION.

TWENTY-FOURTH ANNUAL MEETING, AT SARATOGA,

REPORTED FOR THE INDEPENDENT PRACTITIONER BY PROF. CHAS. MAYR.

TUESDAY EVENING SESSION.

DISCUSSION OF THE PAPER BY PROF. A. W. HARLAN, UPON PYORRHOEA
ALVEOLARIS.

(Concluded from page 524.)

Dr. Odell—That is what I call a good paper. The author does not mention manipulation of the gums, and depends upon the drugs to do the whole work. I have had two cases, one quite recent, where manipulation seemed to be the only thing of benefit. This was supplemented by the application of the galvanic current. I came to the conclusion that it was a sort of necrosis.

Dr. Bogue—Why does Dr. Harlan recommend Canada Balsam at a certain stage? Can he give the rationale? And why at another point precipitated Chalk and powdered Myrrh?

Dr. Harlan—The treatment with Canada Balsam is before the beginning of the systemic treatment; perhaps no particular benefit is derived from the Myrrh in the small quantity used, but it may disguise the taste of other things that might be disagreeable to the patient. The form of a paste seems to have the advantage of not lodging between the teeth.

Dr. Bogue—It does not seem consistent after removing deposits to use remedies which, *ex necessitate rei*, must produce deposits. The substances mentioned are precipitated by water, and the effect must be to render the teeth sticky and unclean. I have noticed for many years a tendency to prescribe Tincture of Myrrh, but never found what it was for, and never saw the least benefit from it.

Dr. Harlan—I have used the paste myself, and never became conscious of a deposit on my own teeth and gums. I think the patient will brush the paste away much more completely than the powder.

Dr. Barrett—With the exception of dental caries, none of the diseases of the teeth come more frequently under our treatment

than does *Pyorrhœa Alveolaris*. Only when we shall understand its etiology will we be enabled to speak intelligently about its therapeutics. Is it an affection of the membranes of the tooth? Is it in the alveolus? Is it confined to the periosteal membrane? Does it arise from constitutional disturbances, or is it merely local and incidental? All these questions must be answered before the practitioner is fully qualified to enter upon its treatment. The cases that have caused me the greatest anxiety have been those in which a simple removal of superficial deposits and the application of astringents, or cauterants, or any other class of remedies, was not sufficient to reach the source of the disease. In one obstinate case, recently under treatment, I was obliged to make repeated surgical operations until I had thoroughly removed nearly all the border of the alveolus about the affected teeth. I believe a concomitant, at least, of severe cases, is a kind of caries of the alveolar edges. It cannot be called a necrosis, for there is no sequestrum; but it is a disintegration of the edges of the septums and walls, due perhaps to a periodontal inflammation. I never had any success in treatment until I had established a clear line of demarkation; the after treatment was then only palliative. The remedy that I have found most efficacious has been Chloride of Zinc. The stimulating effects of this preparation in the formation of healthy granulations are too well known to need argument. I know of nothing that possesses these virtues in so great a degree. After the surgical operation I usually apply Aromatic Sulphuric Acid in full strength, and the subsequent treatment consists in the application of a solution of Chloride of Zinc in such strength as the case seems to demand.

Dr. Atkinson—This subject is highly interesting, because it involves the principles underlying the destruction and reproduction of the tissues. Few of us distinguish sufficiently between an escharotic, a stimulant, and a tonic.

All these agents have the direct influence of coagulating the albuminous portion of the tissues at the particular point, so that, by the operation of the laws of function, new tissues can be formed. But what will occur after this process of coagulation of the albuminous tissues? It is the retrogressive metamorphosis of the layer of tissue immediately underneath that which has been coagulated. The first step is one of retrogressive metamorphosis or return to embryonal conditions, and after this the type produces the tissue

belonging to the parts by repeating the action of the functional movements that first resisted destruction.

The point of strength of solutions is very important; twenty grains of Chloride of Zinc to an ounce give that degree of coagulation that will be analogous to that coagulation that takes place in the evolution of the chicken from the impregnated egg, that suited to the fibrillated condition of the lymph. Aromatic Sulphuric Acid and Aqua Regia, one part to seven parts of water, are best suited for that retrogression that is called wasting of the dentinal ligaments, and that is a local disease which occurs many times on only a single tooth; it will start from the margin of the gum, from the point where the dentinal ligament attaches, and go to the end of the root without involving enough to approach the transverse processes, and the teeth most liable are the cuspids. Where there is no deposit, either salivary ceruminal or sanguinary, I doubt the propriety of mechanical interference. I agree, to a certain extent, with Dr. Bogue in what he said about the deposit of Myrrh. When water enough is added to take hold of the alcohol in the solution of Myrrh, it is precipitated.

Dr. Shepard—A patient was brought to me by a surgeon; he had a specific disease and was treated for it, and as a result had become troubled with so obstinate a ptyalism that it could not be reduced, and this had lasted for three months. The mercurial treatment had been dropped on account of this salivation. Before the commencement of the mercurial treatment his mouth had been put in order by a prominent dentist. Examining the mouth I found a pronounced case of Pyorrhœa, and the patient was left with me. Pus could be expressed from the margins of the gums in all regions of the mouth, and the discharge was so profuse as to make spots the size of my hand on the pillow at night. By nothing but surgical treatment and a stimulating mouth wash, syringing with Aromatic Sulphuric Acid somewhat diluted under the margin of the gum, he returned to the surgeon in two weeks' time, the gums perfectly well, the pyorrhœa all gone, and the surgeon was enabled to renew the mercurial treatment without a recurrence of the trouble. The deposits under the gum were in this case very slight. I would not discredit the results of Dr. Harlan, but I still think that the thorough removal of the accretions, with cleanliness and syringing with Chloride of Zinc or Aromatic Sulphuric Acid solution, is all that is necessary for treatment.

The essayist was undoubtedly correct, and it should be emphasized still more strongly than by the succeeding speakers, that the salivary calculus and the deposits on the neck which give rise to the affection in question are two different and distinct things; this disease is found upon every tooth in the head where there is never salivary calculus; namely, the palatal surface of the upper molars, the labial surface of the upper incisor, and such positions. I wish we could know something about its etiology. I do not remember to have seen anywhere an explanation of its causes, and our treatment is wholly empirical.

Dr. Pierce—The experience which I have had leads me to certain conclusions. I have had many cases of so-called pyorrhœa, but in most of them, when this condition is found in the mouths of children, they are not pyorrhœa, but local inflammation. They present similar features, but readily yield to treatment, and get well. I have never met with a case of urinary calculus without finding two or more teeth affected with pyorrhœa. This fact has led me to believe that the disease is a local expression of a systemic condition, and that the deposit from urine corresponds with accumulations found upon the teeth. We find the disease between the ages of twenty-five or thirty, and forty-five. We find accompanying the disease, if not always preceding it, a filling of the pulp cavity and calcification of the tubuli, and then we find also deposits which resemble tartar on the neck of the teeth. This accumulation precedes the breaking down of the alveolar processes; it precedes the exudation of pus from the alveolar socket, and precedes the inflammatory condition of the gums. Efforts have been made to stop the progress by drilling into the pulp cavity and devitalizing the pulp, but it has not been found an effective treatment. I do not believe that the disease can be cured, but its progress can be modified, and the teeth kept from ten to twenty years by careful treatment. By wiring the teeth to neighboring ones they may be kept in the mouth, but the patient has to come every three months, and the pockets must be thoroughly washed out with Aromatic Sulphuric Acid on a stick shaved down so as to resemble a spatula. This also removes any accumulation on the neck of the teeth. These accumulations I believe to accompany the disease by virtue of the systemic condition, but are not its primary cause. By their presence they act as an exciting cause, stimulating further progress.

Dr. Rhein—I have had a number of cases where constitutional

treatment of some kind relieved the patient, but after the treatment had stopped a recurrence of the trouble took place. Invariably in these cases a slight deposit was around the neck of the teeth. Very few patients keep the teeth thoroughly clean, and with sufferers from this terrible disease this point becomes imperative.

Dr. Field—The assertions of Drs. Harlan and Shepard that there is a marked difference between pyorrhœa and salivary calculus, seem to be something we should fully understand. We know what salivary calculus is; it has been analyzed. But we do not know what the deposit of pyorrhœa is. How can the essayist and my friend from Boston reiterate so confidently that both affections are entirely distinct? I feel more powerless in the treatment of this disease than anything that comes under my hands. I would like to know the distinction; where the one begins and the other ends.

Dr. Allport—I consider pyorrhœa entirely constitutional in the large majority of cases, but tartar may be entirely local. In most cases of pyorrhœa alveolaris there are general symptoms of debility. In many cases it is connected with urinary diseases. Bacteria also have an influence, being universally present in the deep pockets. We cannot succeed with local treatment alone. An abscess will recur if it arises from a systemic disturbance, and so will pyorrhœa. Eugenol and Chloride of Zinc are powerful germicides as well as stimulants, and they act beneficially in both ways.

Dr. James Truman—Was granted the privilege of the floor, and said: I never heard a more absurd proposition promulgated than that this disease is produced by deposits of tartar. I have endeavored to investigate this matter for the last twenty years—ever since Magitot gave to the disease its name, and when he recommended chromic acid for its treatment. What is pyorrhœa alveolaris? Is it anything more than a local irritation aggravated by systemic conditions? In my judgment it is nothing more than an alveolar abscess translated from the apex to the neck of the tooth; in other words, an irritation of the pericementum, and as a consequence we have absorption of the alveolus. How is it produced? Not by pressure, if I understand aright. What is pus? It is leucocytes—wandering cells? What are these wandering cells? They are amœba. This was demonstrated years ago by Von Recklinghausen. What is the function of the amœba? It is absorption, and in proportion as we have amœba we have rapid absorption of the tissues.

Adjourned.

AMERICAN MEDICAL ASSOCIATION.

SECTION OF ORAL AND DENTAL SURGERY.

MEETING AT WASHINGTON, MAY, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY JNO. S. MARSHALL, M. D.,
SECRETARY OF THE SECTION.

(Continued from page 511.)

“Over-draught of Vital or Nervous Power, as Affecting General or Special Health;” by Dr. Jacob L. Williams, Boston, Mass.

SYNOPSIS.

The relations of reserve strength or nervous power to the general health and to the harmonious working of all the functions and faculties, every practitioner has constant occasion to observe. To him it is a great source of reliance for recovery from abnormal conditions and for continued health.

The diseases of different parts of the body have given rise to the various specialties in practice, all of which, when properly considered, have their relations to the general laws and forces controlling the system, and the question may be asked whether in some special departments these general laws are not often overlooked in the absorbing attention given to local disease.

It may be proper for the various specialties to elaborate and demonstrate each for itself the relations to which I have referred, but my present purpose is to make a few suggestions with regard to this matter as affecting some of the conditions of the oral cavity.

I say *reserve* nervous strength, for that is what must be drawn upon in any contest between health and disease. Temporary fortification with artificial tonics alone, gives no lasting victory.

No doubt a large proportion of the people in the artificially active life of our civilization are maintaining an appearance of fair health, while using up every day all the reserve nerve force they have; consequently are liable to succumb at the first extra demand made upon their reserve strength. This fact is also constantly made manifest in our observations of the teeth and mouth of individuals who, whether from a constitutional disposition to over-activity or from obligatory or voluntary overwork, are drawing too heavily

upon the vital forces, for in no other way can some of the persistent abnormal conditions of these organs be accounted for.

Take the very common case of the business or professional man made dyspeptic from overwork. He is advised "to be careful of his diet," etc. This advice is followed, but he still keeps up his habits of overwork, and the diseased condition is not cured. Then rest is directed, and if taken in the right way improvement begins. Now, the idea is rational and seems capable of proof, that not only the gastric fluids but the secretions of other parts of the digestive system are abnormally affected by the same causes.

In cases such as the one just referred to, a greater or less tendency exists to unhealthy conditions of the oral secretions, which hold in solution fermentive material, and must as a chemical necessity sooner or later cause damage to the dental organs. This condition most commonly follows a continuous rather than a temporary over-strain, though I have seen cases of very rapid results from great nerve exhaustion.

Would suggest that the tendency to rapid decay of the teeth might be an aid in the diagnosis of obscure nervous affections.

This relationship of cause and effect I have repeatedly seen strikingly illustrated in young persons, who are more susceptible in this respect than adults, so that now I commonly expect to find more and greater activity of disease in the mouths of young scholars in the *spring* and *early* summer, after a winter season of unremitting application to study and exciting amusements, than in the autumn on their return from a summer vacation of leisure and rest.

Several cases illustrative of the above facts were described.

A similar condition of the mouth very commonly exists, as is well known, during pregnancy.

Another pathological condition in the mouth, which I have seen follow or accompany this exhaustion of vital force, is neuralgic pains at the roots of the teeth, particularly at the roots of the inferior central incisors, the pain in some cases extending along the line of both jaws, the teeth, however, all appearing healthy, and giving no indications of disease under the usual tests. When this disturbing cause is continuous for some time, I have noticed its liability to be followed by some degree of loosening and unsteadiness of the teeth, even when not accompanied with salivary calculus or any evidence

of alveolar necrosis. This condition is no doubt sometimes taken for pyorrhœa alveolaris, and the heroic treatment adopted results as an aggravation of the malady.

DISCUSSION.

Dr. T. C. Stellwagen, Philadelphia, Pa.—I am always pleased to find an association of dental surgens willing to discuss other questions than the mechanical one of how to fill a tooth. It is refreshing to listen to some of the papers presented to this Section, and that of Dr. Williams has particularly pleased me. As a profession we have been inclined to overlook the importance of avoiding an estimate of the amount of nervous strain our patients are able to bear. There has been an undue interest shown in performing faultless mechanical operations, to the detriment of that most important question of the amount of the physical ability of the patient, which every surgeon should regard. Who has not seen a patient entirely exhausted after a long and tedious sitting for filling with gold, and remain prostrated for several days. Many indeed are utterly unable to endure such strain upon their nervous system. For such sufferers plastic filling materials have served an excellent purpose, and without them many teeth would have been lost.

This paper has also recalled some observations that I have made upon "Climatic influences, and their expression in the oral cavity." I have not infrequently seen cases in which there were rapid deteriorations of dental tissue, probably the result of climatic influences, as was apparently proved by the arrestation of the pathological conditions following a change to the air and method of living in the mountains or upon the sea-shore.

(Two cases were described which seemed to aid in substantiating the views advanced by the speaker.—*Reporter*.)

He also spoke of the importance of examinations as to the condition of the dentine to determine the progress of certain chronic or tedious diseases, and thought the removal of a filling to test the density, etc., of the dentine underneath would often prove of valuable assistance to general diagnosis and prognosis.

Dr. Marshall—I hope Dr. Stellwagen will continue his observations in this direction, for they are certainly interesting, and I am sure the Section would be glad to listen to a paper upon this subject

at any time. Perhaps Dr. Stellwagen will be prepared to do so next year.

Dr. Stellwagen—I cannot promise for the next meeting, but may be able to at some future day.

Dr. Friedericks—I am very glad that Dr. Williams has called attention to this matter. It is worthy of more thought than has been spent upon it by the profession in general. I distinctly remember one patient, a little girl, who suffered from cerebro-spinal fever, induced by the nervous strain incident to a long and tedious dental operation. The child recovered, but was an invalid for months. Such experiences ought to teach us a valuable lesson.

Dr. Allport—In my early practice I was in the habit of paying little regard to the condition of my patients when presenting themselves for dental operations, but latterly have seldom subjected a child or a frail adult to long, tedious operations, and then only under the most urgent necessity. I prefer to use some plastic filling material, like the phosphate of zinc, or gutta percha, and occasionally amalgam.

We have been apt to laugh at the operators known as "new departure" men, but we must confess that plastic operations have done very much to alleviate the sufferings and preserve the teeth of individuals just mentioned. I think it much better to use plastic fillings in such cases, and renew them as occasion requires until the health or nervous system is sufficiently strong to endure the strain of a permanent operation.

PENNSYLVANIA STATE DENTAL SOCIETY.

SIXTEENTH ANNUAL MEETING, HELD AT WILKESBARRE, JULY
29, 30 AND 31, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY W. H. TRUEMAN, D. D. S.

The sixteenth annual meeting of the Pennsylvania State Dental Society convened at the Wyoming Valley Hotel, Wilkesbarre, at half-past ten o'clock, Tuesday, July 29, 1884, the President, Dr. S. H. Guilford, of Philadelphia, in the chair.

Dr. C. S. Beck, of Wilkesbarre, welcomed the Society in an eloquent address, which was very warmly received.

The Committee on Enforcement of Dental Law reported that only one case had been brought to their notice ; owing to its surroundings it had been allowed to go by default. The good of the law should not be measured by the number of prosecutions brought under it. They had been few. They had ample evidence that many young men took a thorough college course who would not have done so if the law was not in existence, and had no doubt but that those men were better dentists, and were serving the communities in which they lived far better than if they had not done so. This is what the law was designed to do. They had no doubt but that in time the necessity of a proper qualification before beginning practice will be generally recognized by the public, both for dentists and physicians.

Dr. J. C. Green, of West Chester, read the report of the State Examining Board. Three gentlemen had presented themselves for examination, and had received certificates of qualification. The board was pleased to report that the candidates this year were far better prepared for the examination than any who had previously appeared before them.

Announcement was made of the death of Dr. D. T. Way, of Bedford, and Dr. T. L. Buckingham, of Philadelphia.

After the transaction of business of interest to the Society only, and which will be omitted from this report, the meeting adjourned to meet at half-past two o'clock in the afternoon.

AFTERNOON SESSION.

The afternoon session was opened at the appointed time.

The President read his annual address, in which he reviewed the past history of the Society, and congratulated the members upon the advances that have been made through its benignant influence.

Dr. C. N. Pierce, of Philadelphia—Read a paper upon "Calcification and Decalcification of the Teeth."

He referred to a paper read by him at the meeting held in July, 1877, upon "The Origin and Progressive Development of Tooth-germs."

In the present paper he continued the history of the tooth, treat-

ing of the period of calcification of the teeth, and the absorption or decalcification of the roots of the deciduous teeth. In the careful examination of such animal tissues as are impregnated with lime-salts, it is evident that they, like vegetable structures, have periods of growth and of rest; and that while these conditions are normal, they are greatly modified by what we term the "function of nutrition." In studying the progressive solidification of tissues we can, with a degree of certainty, mark the beginning and the end only; the intermediate lines merely approximate, yet they are near enough to exactness to give an idea of the condition of the average tooth at a certain age to serve as an important guide in the performance of many necessary dental operations. (The doctor here referred to drawings, showing at a glance the supposed progress of calcification or decalcification of the teeth, from their first appearance in the embryo until the denture is complete.)

He briefly reviewed the development of the teeth as shown by the investigations of Dr. J. L. Williams, and especially called attention to the condition of the teeth at about the close of the third month after birth. Then the infant enters into the critical period of its life, and from a glance at the twenty deciduous teeth, it is fair to assume that this condition has not a little to do with the various abnormal systemic lesions or disturbances to which the child is liable at this age. In close proximity to the sharp and irregular edges of the calcifying extremity of each partial tooth-crown lies the vascular papilla—the primitive tooth-pulp—and any want of correspondence between the absorption of the over-laying gum at the coronal extremity, and the deposition of solid matter at the calcifying or papillary extremity, must produce by this retarding influence an irritation limited in its extent by the number of teeth advancing, and the duration of the cause. When the irritation becomes pathological it seems hardly necessary to remind dentists of the great advantage to be gained from the free use of the lance.

He then referred to the importance of knowing how far calcification had progressed when the deciduous teeth need attention early, in cases where the pulp is exposed, or nearly so. Pulps are sometimes exposed while yet the root is not completed in its growth. The impropriety of resorting to the ordinary method of pulp devitalization is, under such circumstances, very apparent.

He stated that the deciduous teeth were much less frequently subject to malformations and defects arising from deficiency in the quantity and quality of enamel and dentine than those of the permanent set, and explained that this was due to the crowns of these teeth being largely provided for in embryonic life, so that the fœtus generally escapes the consequences of imperfect nutrition, which is so common after birth. The permanent teeth, during the periods of calcification, are constantly subjected to the influence of morbid systemic conditions; should these occur while the crowns of any of the teeth are undergoing this process, markings or defects, located at the point of calcification, and limited in extent, or modified by the severity and duration of the lesion, will usually result. The fact that the third molars are developed during the period of childhood and youth, and while the system is liable to frequent conditions which impair nutrition, is probably a potent reason for their lack of usefulness and durability.

The decalcification or absorption of the roots of the deciduous teeth is a somewhat obscure physiological process, and we have found it extremely difficult to do more than approximate the time at which it is carried on. The average period at which it commences will be sufficient to indicate the time when much care will be necessary in the application of the arsenical paste for the devitalization of the pulp, and the subsequent treatment of the pulp-chamber and root-canals. We can only judge how far the process has gone on by the general condition of the mouth; it varies so widely in different families that it is impossible to tabulate its progress with any degree of accuracy. We have spoken of this absorptive process as being physiological, and somewhat obscure. It certainly is both, and in contradistinction to the evolution of the tooth may be termed its dissolution. What induces this process has never been satisfactorily explained. That the organ has served its purpose, and that the nourishment which had previously been appropriated by it is diverted or relegated to its successor, is probably the most plausible explanation we can give of this interesting physiological process.

In recording the periods of calcification of the deciduous and permanent teeth, it should be noted that in many instances a want of correspondence between their calcification and eruption exists. By premature removal of the gum the crown is frequently exposed

while yet there is no root-calcification, as instanced in deciduous incisors erupted at birth, their crowns only being calcified, which is the normal condition of these teeth at that age. Again, not infrequently the persistence of the deciduous cuspids and molars, as well as of the indurated gum over an advancing permanent molar, causes delay in the eruption of the permanent teeth until after the calcification of their roots is completed. These instances illustrate that in one case eruption takes place without the development of the root, and in the other we have complete development of both crown and root without eruption.

In closing his remarks he referred to the researches of Dr. G. V. Black, of Jacksonville, Ill., upon the same subject, stating that his conclusions closely corresponded with his own.

In the discussion which followed the reading of the paper Dr. E. T. Darby called attention to the importance of lancing the gums early, before the irritation had so far advanced as to seriously affect the child's health. If done too soon there was but little injury, while if postponed too long the consequences might be very serious, and the operation prove of but little benefit.

Dr. Gerhart, of Lewisburg—Asked what should be done in a case where the deciduous tooth is in place, in fair condition, and no sign of the permanent tooth, the patient having passed the age when the change should have taken place. Some cases in which he had not removed the deciduous tooth had resulted in serious irregularity, and in other cases where he had done so, the permanent tooth had failed to appear. He knew a gentleman over forty-five years of age with more deciduous teeth than permanent.

Several expressed the opinion that it was best not to remove a deciduous tooth, in fair condition, until there were indications of the permanent tooth. It might be that the germ of the permanent tooth was absent, and in that case the deciduous tooth was better than none, as long as it would remain. On the other hand, it was suggested that if the deciduous tooth was removed and the germ was there, the absence of the baby tooth would probably stimulate its development; if the germ was not there the teeth would close up, and an unsightly space be avoided.

Subject passed.

(TO BE CONTINUED.)

ILLINOIS STATE DENTAL SOCIETY.

TWENTIETH ANNUAL MEETING.

REPORTED EXPRESSLY FOR THE INDEPENDENT PRACTITIONER.

(Continued from page 515.)

FRIDAY, MAY 16TH.

DENTAL EDUCATION.

No formal paper was presented under this head, but the subject was opened by Dr. Cushing, who said that the tendency to specialties sometimes made men move in narrow grooves. The true professional man should be as broad as his mental capacity would permit. Dental education should be discussed with reference to the future. He urged higher, more advanced standards in educational requirements.

Dr. Taft—Said: We work for the future. The position taken to-day governs the future. What are the points most to be considered in this connection?

The first is preliminary education. We need a more thorough, comprehensive preliminary education for the future dentist. It is admitted that the educated man is more influential in our profession and in the community at large. He wields a greater influence. The profession in the future will be what you make it now; for the profession is responsible for its own character.

In conclusion, he urged that provision be made for Post-Graduates to carry on their future studies.

On the invitation of a committee composed of Drs. Black and Kitchen, his Excellency Gov. Hamilton visited the society, and made a short address, in which he said that the State of Illinois had done and was still doing much to foster professional education, and that he was in full sympathy with that effort.

Dr. J. J. R. Patrick read a paper on "Irregularities in Human Teeth; or, Dental Teratology."

He insisted, at the outset, that practical education in dentistry is better than theory. The authors of papers in some of the dental journals and in society transactions were continually showing their unlimited confidence in their own ability, based upon limited observation of the different branches of natural science.

The relative proportion of crown and root of teeth is rarely maintained; teeth with long or large crowns having short roots, while those that have low or short crowns have long roots. Great care should be observed in shifting such teeth, for teeth with long roots require more time to place them in a new position, while those having short roots and long crowns, owing to the greater leverage afforded by the crown, are liable to be lifted out of their sockets.

The speaker traced the development of the teeth from the follicular up to the completed stage, illustrating at the same time the coincident development of the maxillary bones. He said the deciduous teeth, on account of their soft and porous nature and the thinness of enamel, are readily permeated by fluids, and for this reason are subject to early decay. The pulp chambers of these teeth being proportionately larger than are those of the permanent set increases the liability to exposure of the pulp in these teeth, and the resulting difficulties that stand in the way of their preservation. He urged the importance of preserving the deciduous teeth, giving as one reason therefor, that if extracted several years before the time for their successors to appear the cells of the extracted teeth would fill with osseous matter and cause the succeeding teeth to diverge from their proper course, and make their exit through either the external or the internal wall of the alveoli.

If teeth are diverted by the mechanical forces of nature, it is evident that they may be brought into their normal positions by mechanical means, intelligently applied. If the diversion was a gradual process, replacement should also be expected to require time for its accomplishment. Until the calcification of the roots of teeth is complete, which in the incisors and canines is not until the tenth or eleventh year of age, the movement of such teeth with a view to mechanical regulation should be postponed until after that age. The condition of the cusps of the incisor teeth may be taken as a fair indication of the condition of the roots. So long as the notches or cusps remain on these teeth the calcification of the roots is incomplete. A similar observation of the canines will serve as a guide to the condition of their roots also. All devices for the shifting of teeth should be simple in design, that they may be easily understood and applied. They should have two points of action; one on teeth that are not to be moved, and one on the tooth that is to be moved. In his opinion the necessity for extraction of teeth to cor-

rect irregularity is of rare occurrence, and hence it is best to defer extraction until the case has been thoroughly studied.

Dr. W. B. Ames, of Chicago, read a paper on "Some Applications of Electrolysis in Dentistry."

The uses of electrolysis in medicine are limited to the removal of morbid growths. In dentistry this process, as applied to electrotyping and electro-plating, may be made useful for a variety of purposes. A shell of copper may be thrown upon a plaster model and used in moulding celluloid. Crowns of platinum may be plated with gold, and 18-carat gold plates may be electro-plated with pure metal, and thus corrosion in the mouth prevented. The bleaching of natural teeth by safe chemical process is necessarily slow, yet by the aid of electricity it may be done quickly and with safety, when proper care is exercised. Peroxide of hydrogen is a bleaching agent of great power, as is shown in its effect in bleaching hair, and by means of electrolysis its equivalent can be readily manufactured in the tooth to be bleached.

Ozone is intensified oxygen, and one volume of it is estimated to purify three million volumes of putrid air. Thus it is seen that in the evolution of nascent oxygen or ozone within the putrid mass, it may be quickly and thoroughly disinfected. This may be done within the pulp chamber in the presence of the putrid pulp. By this method of disinfection decomposed pulps may be removed without fear of bad results.

Dr. C. R. E. Koch, of Chicago, read an essay entitled, "The Illinois State Dental Society. What has it accomplished?" Giving a history of the Society from the beginning on July 24, 1865, up to the present time.

During the meeting the society visited the Lincoln homestead. The home is filled with a collection of pictures, publications and other articles which have a historic interest, and which serve to perpetuate the memory of President Lincoln.

Dr. J. G. Templeton, of Pittsburgh, Pa., exhibited an articulating model that contained some novel features, claiming that by its use it is possible for any dentist of ordinary ability to acquire the knowledge and skill in mechanical manipulation that will secure to him such precision and accuracy in articulating entire sets of artificial teeth, that failure in the final result will be of rare occurrence.

The following is a list of the officers of the society for the year ending in May, 1885:

President—H. H. Townsend, Pontiac.

Vice-President—Mark H. Patten, Springfield.

Secretary—J. W. Wassall, 103 State St., Chicago.

Assistant Secretary—P. J. Bester, Chicago.

Treasurer—C. R. Dwight, Danville.

Librarian—J. W. Conway, Mount Carroll.

NEW JERSEY STATE DENTAL SOCIETY.

The fourteenth annual meeting of this Society was held at Asbury Park, on July 16th, 17th and 18th. There was a large attendance and a very interesting meeting. Seven new members were admitted to the Society, which now numbers 98 active members.

From the report of the State prosecutor and the discussion thereon, appears the significant fact that there has never been a conviction under the law, notwithstanding the best possible evidence, it would seem, has been produced against its violators. In a case tried during the last year, where the victim of the unlicensed practitioner's mal-practice and the tooth he filled were produced in court, the jury failed to convict, and subsequently the prosecutor was sued for malicious prosecution. The efforts to enforce the law have, nevertheless, generally resulted in the offenders leaving the State, quitting practice, or becoming qualified as the law requires.

Drs. Geo. C. and G. Carleton Brown presented several models and diagrams of cases of regulating teeth by means of Dr. Patrick's regulator, which they described at length.

Dr. G. Carleton Brown—Said, the first case is that of a young lady of about twenty-two years. The mouth was so very narrow through the centre that the front teeth projected far out of the mouth, so that the upper lip would not cover them. Our first plan was to spread the arch, and for that we used a modification of the Coffin plate, making a black rubber plate to fit accurately over the teeth, bearing a little harder on the bicuspid and molars, with a piano wire spring in the centre. This was put on about July 30th and continued until October 26th. We then applied the Patrick apparatus, and drew the two bicuspid out and the incisors in. The

principle of the thing is a gold spring or bar, made as near as possible the shape of the arch, which is attached to the molars and passes around outside, and the idea is to bring the teeth to this line. The case was discharged April 1st, the teeth being in perfect line. This second case was commenced January 14th, 1884. The first bicuspid was extracted in order to gain room. The case was discharged April 3d, the teeth being in good line except the canine, which has not come down far enough to be drawn out. It is claimed by Dr. Patrick that he can regulate any case of any kind with his apparatus. It may be that he can, but I doubt it. I do not think it possible, with one appliance, to regulate all cases, but it is as near a universal regulator as I have yet seen.

Dr. Geo. C. Brown—This case, No. 3, gave us more trouble than any other. The right lateral was very much out of position, but by tying a ligature of floss silk around the neck and passing it around the bar, the tooth was readily turned. The left lateral was of very peculiar shape, and it was impossible to get a ligature attached to it. We had great difficulty in fastening the gold band around the tooth, owing to its peculiar shape. Finally, by putting soft oxy-phosphate over the tooth and pressing the band over that, and holding it until the oxy-phosphate hardened, the band was secured as nicely as could be desired. By putting the band on with oxy-phosphate in this way and attaching the rubber to the arm of the band, you can turn a tooth clear around, or to any position you please, and there is no danger of the band becoming loose. You can apply the Patrick regulators to almost any kind of case, and a little ingenuity in adapting it to the case will enable you to bring the teeth into the required position. The Drs. Brown described other similar cases.

Dr. S. G. Wallace—Described a case of regulating loose teeth. The inferior centrals and laterals were very much loosened by an accumulation of tartar. He removed the tartar, extracted the left lateral, which was too loose to be saved, and proceeded to bring the others into line and close up the space by the positive method. For closing up the space he used French tubing over the central and lateral, letting it come down to the margin of the gum and securing it with ligatures. He then made a gold band for the outside, similar to Patrick's, attaching it to the first bicuspid on each side, also a similar band for the inside of the circle, attaching it to

the canines. The centrals and lateral stood edgewise, the approximal surfaces inclined inward. Before adjusting the bands a piece of tubing was slipped over both, so that when in position the tubing was drawn through the space where the tooth was extracted. This held the bands in position, and the teeth were drawn into line and the space entirely closed up in ten weeks' time. When he commenced the case the gum and process were much absorbed and the four incisors so loose that there was doubt about saving any of them. It is two years since the case was completed; he saw it yesterday, and found the mouth in a healthy condition, the tissues somewhat restored, and the teeth and gums perfectly solid. He treated the gums during the operation, and saw the patient five times during the ten weeks. He has pursued this method in many cases with very successful and satisfactory results.

Dr. C. S. W. Baldwin—Four years ago, before I had heard of the Patrick regulating system, I applied an apparatus, made very much on the same principle. I made a silver band and attached to it at either end pieces of rubber that fitted the molar teeth perfectly; two holes were drilled through the rubber, and it was tied to the molars. The teeth I had to regulate were the central, lateral and cuspid. The lateral stood much inside of the arch, the central had to be twisted, and the cuspid had to be drawn in. The natural tension of the band drew in the cuspid very readily. I used rubber tubing to draw the lateral out; and to twist the central I used a cord formed into a slip-noose and so attached as to draw on the proper side of the tooth, the other end being tied to the band. I think I was something like seven months in regulating that case. I had great difficulty in getting the patient to wear this band on the outside of the teeth; she was a young lady, and naturally objected to the disfigurement. It was a very successful and satisfactory case of regulating.

Dr. F. C. Barlow—I have a case somewhat similar to that which I have been working on for some time with metal plates, and without much success. I found it very difficult to turn the teeth. Last week I took hold of Dr. Patrick's apparatus, and I have it on the case now. The patient does not object to wearing it.

Dr. B. F. Luckey—I have been using the Patrick regulator for the last three or four months in drawing out teeth, and also in rotating them, and with excellent success.

Dr. C. S. Stockton—I have never used the Patrick regulators; nevertheless I am very much interested in the remarks of the Drs. Brown, for the reason that this apparatus is one that you can buy at the dental depots and have ready at your hand, and is therefore a great convenience. I have used for drawing in projecting front teeth an apparatus something like it, which patients can wear and adjust with more ease and comfort than they can this. If you take out the first bicuspid, as I did some time ago in a case, apply a band around the first molars with a nut attachment, then extend a band around the arch with a screw attachment; you can give your patient a little key, with directions to give that screw a turn once a day until the pressure is felt. The case I speak of was regulated in about six weeks, the space being entirely closed up. I saw the patient but once a week, and then did nothing; the patient does the whole work. I have two cases of that kind now. In one I took off the apparatus in about four months, and one is wearing it now. Dr. Dodge, of New York, recently reports a case of a gentleman who had worn away the back teeth so that the front teeth had been forced out of position, and when the back teeth had been built up and restored so that they articulated as they formerly did, these teeth fell back after the lapse of twenty years to what was their normal position. Therefore the question arises: How long must you wear these regulators in order to bring teeth into position and *keep* them there? Both of these cases I have spoken of have been very satisfactory to the patient. Nothing is more disfiguring to a person than protruding front teeth, and there is no work the dentist has to do which gives more pleasure to his patients or makes them firmer friends than the regulating of such cases. Take the case spoken of by Dr. Brown, where he restored the beauty of his disfigured patient so that she could be mistaken for her always pretty sister; nothing he could do for that woman would secure her gratitude so surely as that. I have had more pleasure and profit in using the Coffin plate than in using any other regulating apparatus. I saw Dr. Coffin in London, and he took the trouble to show me a large number of models, over one hundred certainly, of cases of regulating, and from an examination of them I am convinced that the cases are very few where you cannot use his device. Dr. Watkins had a case some time ago, which I saw in his office in Montclair, where he wanted to draw in the lower front teeth, and

he made a piece of that kind. He covered the molars and bicuspids with a rubber plate, which is a very necessary part of the operation, having a bar running across inside, and the teeth were drawn in by means of rubber bands attached to them and to this bar. I regulated a case in a similar manner some time ago, using piano wire for the bar. By covering the teeth that are not to be moved they are held firmly in position; there is no giving way; the bands and wires pull and push the mal-positioned teeth where you want them, while the rubber plate holds the others in position securely, making a basis from which to draw the wanderers into place. Without having had experience in the use of Dr. Patrick's apparatus, I know of no other that is equal to Dr. Coffin's.

Dr. S. C. G. Watkins—As Dr. Stockton has mentioned my name I will tell you about the case he referred to. It was a boy about twelve years of age, whose lower incisors closed outside of his upper ones so that the upper incisors touched the lower gum inside. His chin was thrown away forward, and his face had a very peculiar expression, as you can readily imagine. I applied a plate which covered the lower back teeth so as to give a grinding surface and open the mouth sufficiently to allow the lower incisors to pass by the upper ones. I placed rubber rings on a bar that runs across the plate inside, and tied silk floss around the projecting teeth, and secured that to the rubber rings so as to draw them tight. By using silk floss instead of rubber around the teeth you are not bothered by the band working down under the gum and causing inflammation, because the floss will stay just where you put it. In this case I saw the boy once a week for nine weeks, changing the apparatus and cleaning each time. At the end of nine weeks I removed the apparatus, telling the boy to close his mouth and keep it closed, so that the upper incisors would close over and prevent the lower ones from returning to their former position, if there should be any such tendency. The effort of the lower teeth to get back to their old position pressed the upper ones out considerably. The lower ones moved back so that they stood erect. I took the apparatus off last January, I think, and everything is lovely so far. They cannot get back unless they crowd the upper teeth far out, which is not likely to happen. The boy's speech is very much improved.

Dr. W. H. Atkinson—I am delighted to see the progress that has been made, and the intelligent expression of the knowledge of

principles that has been manifested here this afternoon. One important point in regulating teeth has been overlooked. Wherever teeth in their occlusion hold other teeth out of line, the mouth must be opened far enough to relieve that point. When that is done teeth can be transferred to any extent, and without even tenderness, much less pain. Wherever you have tender teeth in these operations, you have done your work imperfectly and unintelligently. The point is well taken as to the utility of the bars that are used externally, and which describe the arc of an ellipse in which the teeth should stand, and every method which looks in that direction has more or less intuitive intelligence in it ; but the great point is to find the teeth that are not to be moved, if any do occlude rightly, and if they do not, they should be brought into position. When that has been done they should be held there until reconsolidation of the alveolar process takes place. What is called decalcification, or solution of the lime-salts, has to take place every time you remove a tooth ; and if you hold the teeth in position until reconsolidation takes place, then when irritation comes on you do not get such an example as that referred to by Dr. Stockton, of teeth wandering after twenty years, if you have your occlusion right, so that each of them may do its share of the work. Dentists are too much afraid of using the corundum wheel in trimming the points of teeth that have not been worn down so as to be equal with those that have been worn. They do not see that the teeth occlude in a proper manner so as to perform the function of teeth. In moving teeth we need not take nine months to do it, nor nine weeks, if you follow the line of instructions. Take your impression and make a model of the mouth, and then study your case. Make up your mind what teeth are not to be moved, then make a plate that will give you an occlusion to chew upon, and to this attach a bar of platinum or iridium, passing around the outside of the arch ; mark on this bar the points to which each tooth is to be drawn, and there punch holes through the bar for the reception of the rubber bands that are to draw the teeth in the required direction, and never change it. It is better to make the holes into slots by sawing out the upper part of the bar down to the holes, to prevent the checking of the rubber rings ; countersink each side of the holes, and with a corundum bur polish them off nicely, the idea being to keep the band that goes

around the neck of the tooth from going far enough to interfere with the dental ligament or festoon of the gum, but just far enough to get hold of the tooth. Slip the other end into the little slots in the bar. The teeth are to be drawn out to the required position plus a little, so that there will be a little room for them to fall back; and when they fall back they will all be occluded, each one against its antagonist, and stand like staves in a barrel; and being like staves, chamfered a little, they will probably not need anything in the way of cooeping at all; the occlusion will hold them in place. If you trim the teeth that are not worn down to conform to those that are, the occlusion will be perfect. Then apply a little tincture of calendula and dismiss your patient for a week. It is not the amount of pressure that you bring to bear upon a tooth that accomplishes the object you have in view, but the continuousness of it. My soul yearns when I think of twisting and turning away for three or four or five years to get a tooth into position, as we used to do. Let the machine do its work, and there will be no tenderness of the teeth if you do not keep biting upon them. What men call inflammation is not inflammation at all; it is simply a retrograde metamorphosis of the tissues so as to make them soft enough and near enough to their embryonic condition to be guided into the position required by the new circumstances, and the process of reconsolidation of the softened sockets is a repetition of the metamorphosis from the embryonic condition to the adult state of the tissues. If there is any disposition of the moved teeth afterwards to return to their former position, you may be sure you have not understood your case. Cases in which extraction is desirable are so rare that they do not deserve attention. In just a few cases of heredity, where there has been a crossing of diverse races, it may be necessary, but, as a rule, in these cases of irregularity there is nothing to warrant the extracting of teeth.

Dr. M. W. Foster—Did I understand you rightly that you apply direct ligatures to the teeth?

Dr. Atkinson—Yes, sir.

Dr. Foster—And without tenderness?

Dr. Atkinson—And without tenderness.

Dr. Trueman—Will you explain how you keep the rubber from impinging upon the soft parts?

Dr. Atkinson—I will. By having the bar stand in such a posi-

tion as to prevent the rubber from creeping against the festoon of the gum.

Dr. Geo. C. Brown—I understood you to say that teeth can be moved in less than nine weeks, and without causing inflammation?

Dr. Atkinson—I did.

Dr. Brown—How is it that we have so much trouble in separating teeth with rubber for the purpose of filling, and how would you suggest that the operation be performed so as not to produce soreness?

Dr. Atkinson—Without any pushing.

Dr. Brown—I don't care how little pushing you do, when you move teeth they will be sore.

Dr. Atkinson—You are very much mistaken. I have seen teeth separated with rubber so that I could put my little finger in the space. If you but understand the histological and pathological conditions of the tissues you will know what makes this tenderness, and you need not have it at all, even in children.

Dr. Brown—Can you separate teeth sufficiently wide for filling without tenderness?

Dr. Atkinson—Yes.

Dr. Brown—In how long a time?

Dr. Atkinson—In five minutes.

Dr. Brown—What with?

Dr. Atkinson—With wedges. The man who will separate teeth day after day for the purpose of filling is to be pitied.

Dr. Brown—I pity the patient of the man who does it in five minutes.

Dr. C. S. Stockton—In the case I spoke of where the upper incisors protruded over the lower ones so much that you could place your finger between them, it was necessary, in order to make a successful operation, to extract the first bicuspids. Dr. Atkinson's idea is that only in very rare cases is it necessary to extract teeth, which is true, but this was one of those cases where a man who says his prayers does extract teeth; a case, may-be, where a Dutch woman had married an Irishman, or something of that kind.

Dr. Atkinson—If Dr. Stockton says it is so I am quite willing to believe it, and consider it one of the exceptions to the rule.

Dr. James Trueman—Without intending offence to Dr. Atkinson, I wish to enter my protest against the doctrine he has enunciated. That teeth can be moved and the periosteum be irritated sufficiently

to produce what we call absorption without producing soreness of the teeth is an absurdity that I never before heard promulgated in a dental convention. I contend that it is impossible to move teeth without irritating the periosteum, and that irritation will necessarily produce more or less soreness. In regard to wedging teeth, which he advocates so strongly, to my mind wedging teeth, and doing it in five minutes, is one of the worst features ever introduced in our profession. You cannot do that without producing irritation. You can move them a short distance by reason of the elasticity of the periosteum, but when you move them more than that you produce destruction, and you get strangulation of the pulp. You can move teeth slowly and produce very little irritation, but there is always irritation, and always inflammation as far as it goes.

Dr. Atkinson—It takes intelligence to comprehend. How does the gentleman get the elasticity of the periosteum that he speaks of? It is not the elasticity of the fibrous connective tissue of the periosteum, but the pressing of the neurine in the fine nerve filaments and the blood in the capillaries that are distributed through the meshes of this connective tissue that give way by pressure, and thus set up a retrogressive metamorphosis, by which the lime-salts in the sockets are dissolved and the teeth allowed to move. I did not say I would move teeth at one clip, but that I would do it in five minutes. Take the stiffest teeth, put in a wedge gently at the cutting edge so as to strain just a little, then insert one near the gum and tap it gently until the first one has been relieved, and so by successive taps upon each wedge alternately you will get the room you want. How do you get that room? You get it by mechanically impinging upon the vessels that carry the fluids through the fibrous connective tissue of the periosteum, and you get it without inflammation and without irritation. Men say "inflammation" and "irritation" to cover up the d——d ignorance that cannot tell what inflammation or irritation is. Irritation means scratching, and sometimes means a rebuke. When you move a tooth slowly, the blood that is in the capillaries and the neurine that is in the nerve filaments are expelled from every one of the nerves and capillaries, and when the pressure is relieved, those currents will come back without the faintest blush of tenderness.

(TO BE CONTINUED.)

Editorial.

OCTOBER.

This is the month in which most of the colleges of the country open their doors after the summer vacation. From this time until April, what with professional engagements and regular lectures, college professors have a busy time of it. It is not the lectures alone that demand so much of their time, but every teacher whose heart is in his work (and if it is not he is woefully out of place), must be a constant student that he may keep fully abreast the advance of thought, and be prepared to place intelligently before students all the latest discovered remedies and the newest appliances. A competent teacher in any advancing profession has no leisure for rest. Should he for a moment attempt to rely upon a well-earned reputation and remain content with present acquirements, he will have the mortification to see the professional world moving past him, and will soon find himself in the rear instead of the vanguard, which is his proper place, while his pupils will seek a more progressive master. As colleges multiply, the strife for a leading position becomes more intense, and hence every college professor is constantly placed upon his mettle. This is a fact that should be taken into consideration by those who believe that we already have too many schools, and that what is needed is rather a better support for those already in existence.

It is a momentous question for a student to decide, when he is called upon to choose his Alma Mater. It is not alone the character, intelligence, and professional standing of the professors, but as every man has his individual characteristics, so every school is distinguished by peculiar features. The character of his probable class associates and the general tone which prevails at any specified school, should largely influence the student in making his choice. The relation of the school and its professors to the profession as a whole, and the question whether it is engaged in sustaining a wholesome professional code and placing its students upon high moral ground, are matters of great import. The school that is engaged in insidiously undermining the moral basis upon which a profession rests, that teaches, or connives at, or ignores questions of professional ethics, should be carefully avoided. We have in mind as illustrative of this a prominent college, one of whose professors in a

lecture before the graduating class instructed them in the different ways by which the provisions of the wholesome state laws for the regulation of dental practice might be evaded and infringed. He absolutely gave them lessons in quackery, did what he could to place the students in antagonism to the reputable part of the profession, and lent his influence toward launching them upon professional life to wage a war upon their own flag, and make of them professional pirates at the outset. It need not be said that schools in which the moral tone is at so low an ebb should be shunned by students.

It is but natural that as a journalist we should feel the deepest interest in those institutions that are represented in our advertising pages, for our attention has by that presentation been specially called to them. We do not think that they are the only schools worthy of patronage, but it is certain that all of them are representatives of their class.

The Medical Department of the University of Buffalo has already commenced its thirty-ninth annual course of lectures. It was founded by men who have become eminent as teachers, practitioners and authors—Austin Flint, John C. Dalton, Frank H. Hamilton, and James P. White—and the high reputation that the college secured at the outset has ever been maintained. The didactic teaching of this school is not inferior to that of any college in America. Although it confers no diplomas in dentistry, it offers through special lectures by its corps of professors, as well as by the establishment of a chair for oral diseases, unusual inducements for dental students who desire to take their first, or first and second courses in a medical college.

Of the New York College of Dentistry it is unnecessary to speak at length. It has been too long and too favorably known to the dental profession to need extended notice. It is sufficient to say that never in its history was it so well prepared to offer every advantage to the student as it is to-day. The college is open during the entire year, and when there are no lectures the student is afforded opportunities for actual practice in the Infirmary, under the direction of capable demonstrators.

The Chicago College of Dental Surgery is a new institution, but it seems destined to take an important position. It is the only dental school in a great city, and therefore possesses all the facilities

which such a city can offer. It takes high professional ground at the outset, and proposes to graduate no student who is not thoroughly qualified. From the high character, sound scholarship, and eminent professional attainments of its professors, it is not at all a hazardous matter to assure students that they will have every opportunity for securing thorough training and an intimate knowledge of all that is essential for them to know, and if after graduation they do not take high positions, the fault will be their own.

THE EARTHY PHOSPHATES.

It has been, and still is, the custom of many intelligent dentists to prescribe for pregnant women phosphate of lime and other like preparations, in the expectation that they will exercise a beneficial influence upon the teeth of the fœtus. Mothers whose previous offspring had bad teeth were persuaded that the trouble arose from a lack of lime salts, and that all that was necessary was to artificially supply them; indeed we have frequently heard dentists expatiate upon the wonderful results that have sometimes resulted from such treatment. We cannot but think that these cases are only coincidental, and in but few instances due to a course of treatment that seems to us a violation of all physiological law. It is true that in rachitis, for instance, there is a lack of certain known elements, but it is also true that they cannot be mechanically supplied. There has been a great outcry against the use of finely bolted flour, but it has been more than once demonstrated that even were white flour the exclusive diet of a pregnant woman, it contains earthy phosphates far in excess of the actual needs of both mother and fœtus. No matter what the food, almost invariably these are found in the excretions during pregnancy, showing that if there be a lack of such elements in the bones or teeth of the child, the fault lies in the nutritive process; in assimilation, rather than in an imperfect diet. Of course we do not mean to imply that care in the selection of good and wholesome food is a matter of no consequence, for there are other considerations besides those of the mere presence or absence of certain essential ingredients in great or small quantities.

The food of man is originally derived from inorganic materials, but his organization is unable to elaborate it directly. It is the function of vegetable life to organize the inorganic. Plants can obtain nutriment directly from the earth by the assimilation of inorganic matter. Animals exist only by the digestion of organized

bodies. The carnivora must even have this organic matter *re-organized* before it will serve for their pabulum, and hence their food must have passed through two processes of digestion. First, it must have been organized by the vegetable kingdom, and this again must be redigested in an animal organization before it is fitted for their nutrition. Man has a digestive apparatus that will accept of pabulum that has been either once or twice organized, but he cannot assimilate inorganic matter.

This being the case, it follows that it is idle to administer earthy matter in the expectation that it will be directly incorporated into the system. The digestive function must elaborate its own material from that which has been once organized before its introduction into the alimentary canal, and therefore the giving of earthy phosphates for the growth of the teeth or bones is a mistaken practice.

But we may prescribe inorganic substances with good results where we desire to exercise a definite influence upon certain of the tissues or organs. By their mere presence they may modify or change function, and control or direct imperfect digestion and assimilation, so that the system shall appropriate instead of reject the needed elements of the pabulum. It is possible that phosphate of lime, for instance, may thus act remedially, although it has never been regarded as a medicinal agent of much value. If it be prescribed, therefore, it should be done intelligently, in the expectation of alterative effects, and not ignorantly, with the view of its being directly organized into the osseous system.

TEXT BOOKS.

There are certain reference books that are essential to students entering college. They are needed for every-day use, to enable one to become thoroughly familiar with all the technicalities of a subject. Of course it is presupposed that works like that of Taft on Operative Dentistry, Garretson on Oral Surgery, Richardson on Mechanical Dentistry, Kingsley on Oral Deformities, with other standard text books, will have been thoroughly mastered, but there is a necessity for compendiums; condensed epitomes for pocket use and for every-day reference. One of the best of these, and that too upon a subject with which dental students are not usually sufficiently familiar, is Prof. Stubblefield's Handbook of Materia Medica and Therapeutics. The system upon which it is founded is an admirable one, and we can heartily commend it to every student.

A PROVOKING BLUNDER.

When the first form of this number was presented to us for final revision, we wrote, as plain as the nose upon the compositor's face, a correction in the foot-note upon page 552. "Miss Kilmansegg and her Wooden Leg" is the name of the poem referred to, but when the form was all printed we found it as it appears—Kilmanugg. Ugh! as if we did not know a name with which we have been familiar from childhood.

Current News and Opinion.

THE TOOTH CROWN PATENTS.

Editor Independent Practitioner:

The case of the International Tooth Crown Company vs. Berkowitz & Muller, heard by Judge Wallace in New York last week, was of great importance to the dental profession.

Mr. Dickerson, for the company, moved for an injunction against the defendants under the C. M. Richmond tooth crown patents, the Low bridge patent, and the A. S. Richmond bridge patent.

The motion was opposed by Mr. S. J. Gordon for defendants, the principal witness being Dr. A. S. Richmond, as to the facts concerning the date and use of the alleged inventions, and Drs. Dwinelle, Northrop and Kingsley, as experts upon the date of the art and the scope of the alleged inventions.

The C. M. Richmond and Low patents were invalidated, and the profession has nothing more to fear from them. The decision as to the A. S. Richmond bridge patent was received for consideration.

It may be regarded as open to all to place artificial teeth upon a bridge, supported by *one* Richmond crown or cup. The patent is for such a bridge between *two* Richmond crowns or metal cups, covering roots, at each end of the bridge.

A desperate effort will be made to sustain this patent, which seems to be the only thing of any importance left to the company.

Any dentist in the United States, who placed a bridge sustaining porcelain teeth between two cups or caps covering roots, before

August 8, 1882, can aid materially in defeating that patent by sending his address to Mr. S. J. Gordon, at 44 East 14th St., New York, and stating the time when it was done.

The case is of yet greater importance to parties who have been so unfortunate as to take licenses from the complainant company.

The defendants were licensed, but their licenses had expired before suit was brought, and it was contended that they were estopped, by the stringent and peculiar provisions in the licenses, from showing they were a fraud on the part of the party obtaining them, and therefore void, or that the patents were invalid, because the covenants of the licenses were that they would never at any time deny or contest their validity.

This grave question is also reserved by the court for consideration, but great confidence is felt that the court will never enjoin any parties under patents which it has decided to be invalid, and concerning which the proof was positive that the party obtaining the patents and the licenses knew that the patents were illegal when obtained, and that a great fraud was practiced upon the government and the public by procuring and seeking to enforce them.

W. H. DWINELLE,

Sept. 22, 1884.

Pres. Am. Dental Protective Union.

PEDIATRIC APHORISMS.

The *Obstetrical Gazette* quotes the following from Prof. Letamendi (El Dictatem).

1. Children are like the mob; they always complain with reason, although they cannot give the reason why they complain.
2. Always look at the lips of a pale and sickly child; if they are of a deep red color, beware of prescribing tonics internally. At the outset you will congratulate yourself, but in the long run you will repent of having employed them.
3. As a general rule, a sad child has an encephalic lesion, a furious child an abdominal one; a soporific child has both, though indistinctly defined.
4. An attendance on children produces in the mind of an observant physician the conviction that the half, at least, of adult transgressors are so through morbid abdominal influences.
5. A sunny living room, a clean skin, and an ounce of castor-oil in the cupboard—these are the three great points in infantile hygiene.

6. To dispute the clinical value of tracheotomy in croup is a waste of time to no good purpose. Croup or no croup, if there be a positive obstruction to respiration it is but according to reason to open a way for sub-laryngeal respiration. In the day of more knowledge and less nonsense, tracheotomy will be ranked among minor surgical operations.

7. Dentition is a true multiple of pregnancy, in which the uterus and its foetus become petrified in proportion as they grow. It is not the direct or the eruptive pressure, but the lateral pressure of all to gather that is the most dangerous. It is from this that so many cerebral symptoms appear, which can in no way be relieved by incision of the gums. The only recourse against the danger of this tranverse pressure is to give the child more nourishment, in the hope that as the general condition is bettered the local condition will also improve.

8. If the incisors of the first dentition are serrated it is bad, but if those of the second formation are the same it is worse. It foretells a number of lesions arising from deficiency of mineral salts in the tissues. There is only one exception, and it is an important one. When the serrated incisors are seen in strong children in whom the fontanelles have closed early, it is a sign of a robust constitution. Instead of a number of small and sharp dentations, there are a few large blunt ones.

9. To regard the eruption of the teeth as the sole factors in the general process known as the first dentition is to perpetrate a sort of a medical synecdoche. Children get their first teeth because they are at the same time getting a second stomach and second intestines.

10. The body of a child possesses such a degree of "acoustic transparency" that in cases of necessity or convenience auscultation may be practiced with the hand, converting it into a telephone, which will reveal as much to the physician as even his ear could do.

11. In practice it is well to distinguish with precision a case in which disease is due to lumbricoids from one in which lumbricoids are due to disease. For in the former case anthelmintics are of service, but in the latter they do harm.

12. Since, until a child is able to speak clearly his relations with the physician are purely objectice, it is very necessary that we should study as carefully as do the veterinarians the exact correspondence between lesions and the expression of the patient.

13. If you wish to cure rapidly and well joint-disease in infants, you must treat them as you would a conflagration—douches, douches, and more douches—until you have succeeded in extinguishing them.

14. The entire system of the moral relation between children and adults should be changed. To speak to them incorrectly merely because they cannot pronounce well; to excite their fears and arouse their weird imaginations simply because they are easily frightened and impressionable; to stimulate their vanity because they are naturally inclined to be vain; these and other similar actions are not only wrong, but absurd.

15. There is, finally, a danger to the women of contracting a vice as yet unregistered in the annals of concupiscence; mastomania, or the sensuality of nursing. When this physiological act degenerates into vice, nursing becomes so frequent as to be nearly continuous, and the result is ruin to both mother and child. Finally, the physician must here, as always, be at once wise, discreet, of good judgment, and firm.

ANALYSES OF BEEF PEPTONIDS.

Report on Beef Peptonoids by Prof. Attfield, F. R. S., F. I. C., &c., author of "A Manual on Chemistry, General, Medical, and Pharmaceutical."

The chemical examination to which I have submitted your Beef Peptonoids yields the following results in 100 parts:—

| | |
|--|--------|
| Albumenoids (containing nitrogen 10.94), | 69.25 |
| Fat, - - - | 10.71 |
| Sugar, including a trace of starch, - | 9.50 |
| Phosphates, equal to bone phosphate, - | 3.01 |
| Other mineral substances, - - | 2.61 |
| Moisture, - - - | 4.92 |
| | <hr/> |
| | 100.00 |

The manufacturers of "Beef Peptonoids" state that this food is composed of dry lean of beef, one-third; the solids of milk, minus most of the fat, one-third; the gluten of wheat, one-third; the beef being partially digested or "peptonized." My analysis fully supports this statement; for I find present between 69 and 70 per cent.

of albumenoids, that is, flesh-forming material (nitrogen 10.94); more than 20 per cent of warmth-producing substance, nearly half of which is milk sugar, and rather more than half fat; 3 per cent. of bone-forming phosphates; about 2 per cent. of other normal mineral matter, and about 5 per cent. of moisture. A sample of the constituent gluten submitted to me was practically pure, containing a mere trace of starch. Rather more than one-fourth of the albumenoids, probably the "peptonized" portion, was soluble; while practically the whole of the "Beef Peptonoids" was readily soluble in peptonizing fluids, showing that it is easily and wholly digested when taken into the stomach. The flavor and odor of the preparation are excellent; its thorough state of dryness fits it for keeping any length of time in any climate. It is by far the most nutritious and concentrated food I have ever met with. Indeed, a palatable and assimilable and in every way acceptable article of food, containing nearly 70 per cent. of truly nutritive nitrogenous material partially peptonized has never before, to my knowledge, been offered to the medical profession or to the public.

JOHN ATTFIELD.

London, November 18, 1883.

DENTISTS' BENEVOLENT ASSOCIATION.

The first annual meeting of the above organization was held at Sweet Springs, Mo., July 10, 1884, the President, Dr. C. H. Darby, in the chair. About twenty-five of its members were present. The report of the Treasurer was received and approved.

The following officers were elected for the ensuing year:

PRESIDENT.

Dr. C. H. Darby, St. Joseph, Missouri.

VICE-PRESIDENTS.

Dr. F. Swan, Booneville, Missouri.

" J. J. R. Patrick, Belleville, Illinois.

" W. H. Eames, St. Louis, Missouri.

" R. E. Nickles, Salina, Kansas.

" J. W. Reed, Butte City, Montana Territory.

Mr. P. X. Combs, Chicago, Illinois.

SECRETARY AND TREASURER.

Dr. R. I. Pearson, Kansas City, Missouri.

BOARD OF DIRECTORS.

Dr. A. H. Thompson, Topeka, Kansas.

" J. A. Price, Weston, Missouri.

" J. M. Austin, St. Joseph, Missouri.

" G. H. Cushing, Chicago, Illinois.

" G. W. Tindall, Kansas City, Missouri.

" C. B. Hewitt, Kansas City, Missouri.

" J. D. Patterson, Kansas City, Missouri.

" H. S. Thompson, Kansas City, Missouri.

" A. C. Schut, Kansas City, Missouri.

" J. S. Letord, Kansas City, Missouri.

This association is duly authorized by charter from the State of Missouri to carry out the objects of its organization, and offers to the members of the dental profession a reliable means of providing for their families in case of death. No salaried officers or other excessive expenses to encumber its progress. Correspondence solicited.

R. I. PEARSON, Secretary,

2206 Troost Ave., Kansas City, Mo.

TRANSACTIONS OF THE NEW YORK STATE DENTAL SOCIETY.

Permit me to say to those interested that I have to-day sent by express to the several district secretaries packages of transactions of the Dental Society of the State of New York for 1884, with the request to distribute immediately. Permanent and delegate members will receive their copies through their respective district secretaries. Copies to dental journals, honorary members and non-resident M. D. S's. will be mailed from this place. Yours, etc.,

J. EDW. LINE, Chairman of Publishing Committee.

We have received a copy, and congratulate the committee on its unusually early appearance. It is a matter of regret that "Our Book Table" is crowded out of this number, and with it the proper notice of this volume.—EDITOR.

DENTAL EDUCATION IN GERMANY.

Fresh advantages are to be given for the study of dentistry at the University of Berlin. A large building has been given up as the Royal University Clinical Hospital for diseases of the teeth and mouth, under the management of Professor F. Busch, assisted by Dr. Laver and Dr. Klingelhofer. It will be opened next term. A special dental school is also to be opened in the winter term, at the University of Leipzig, under the management of Prof. Dr. Hesse.

NEW ENGLAND DENTAL SOCIETY.

The twenty-second annual meeting of this society will be held at Boston, on Thursday and Friday, Oct. 2 and 3, 1884.

The meeting on Thursday will be at Hawthorn Hall, No. 4 Park St., Boston., and will open at 11 o'clock A. M.

The meeting on Friday will be held at the Old Harvard Medical School Building, foot of North Grove St., Boston. Headquarters will be at the Tremont House.

Members of the profession in New England are cordially invited to attend.

DEATH OF COHNHEIM.

This eminent German pathologist, pupil and former assistant of Virchow, Professor of Pathology in the University of Leipzig, died at the latter city August 14th, at the early age of forty-five. His name has long been a familiar one to histologists, owing to his researches on embolism and his discovery of the escape of the white blood-corpuscles from the walls of the vessels during inflammation.

FIFTH AND SIXTH DISTRICT SOCIETIES.

The Fifth and Sixth District Dental Societies of the State of New York will hold a Union Semi-Annual Meeting at Syracuse, Tuesday and Wednesday, October 14 and 15, 1884.

The business committee request members to note interesting cases in their office practice in a daily memorandum book, and to favor the meeting with extracts therefrom.

ASSISTANT WANTED.

A laboratory assistant is wanted by a dentist doing a first-class operative business, but whose mechanical work is limited. He must be a competent gold worker. Salary moderate. Address "Dental Assistant," in care of the Editor of this Journal.

SEVENTH AND EIGHTH DISTRICT DENTAL SOCIETIES.

The above societies will hold a Union Meeting at Rochester the last Tuesday and following Wednesday of this month (Oct. 28th and 29th.) An excellent programme is in preparation.

(26.) In making full sets of teeth I take the bite and arrange the articulation in the usual way and observe all the care of which I am capable, but every little while I am mortified by having the molar teeth too long, so that the front ones will not meet. Cannot some one who has met and conquered this difficulty tell me what on earth is the matter?

TROUBLE.

(27.) What is the best thing to use upon the impression before pouring the plaster cast, to prevent its sticking? Oil, soap, collodion, shellac, and other things are used. Is there anything better? I am not quite satisfied with either.

D. D. S.

(28.) Where the surfaces of the teeth near the margin of the gums are quite sensitive to the touch (as with the finger nail), what is the best remedy to apply?

C. B.

(29.) In cases of extraction, where the blood flows copiously from the socket after the tooth is removed, what is the proper thing to do?

L.

(30.) I have been told that no law existed for regulating or restricting the practice of medicine in this State until since the enactment was procured from the Legislature for restricting the practice of dentistry. Is this a fact?

NEW YORK.

Answers.

M. S. (22.) Roughen the surface with a file, and with a rather heavy spatula, heated quite hot, paste or "smear" small pieces of rubber until the surface is covered, taking care to entirely exclude the air. The hot spatula melts the rubber so that it can be easily manipulated, almost like gutta-percha. No dove-tails or drilled holes are required. If a tooth or block is to be put on, fill the space with as much rubber, pasted or smeared in, as seems necessary; then heat the tooth or block carefully, press into place, and when cool trim with the hot spatula.

To invest, use the flask entire (except top plate) fill, bury the plate entirely, put on top plate and bolt loosely if you like. As soon as the plaster sets sufficiently hard to handle, put into the vulcanizer.

This process is not new, but I think is better and quicker than using dissolved rubber, which I used a good deal some years ago, but discarded for what seems to me to be the better way. One or two trials ought to convince the most skeptical. No wax need be used during the entire process. J. B. DAY, N. Y.

M. S. (22.) In repairing, new rubber can be made to cohere perfectly with old rubber, if, just before packing, the old plate be covered with a thin solution of vulcanite dissolved in chloroform.

STUDENT.

(24.) Chalfant is still serving his sentence in the California penitentiary. He has about four years more.

(25.) Or write to the undersigned. Richmond obtained, or rather stole what little he knows from Dr. Beers of San Francisco. Beers patented the crown. Richmond added the porcelain tooth front. At present the Beers patent is tied up, some eastern party holding a bill of sale for a deposit upon the proposed purchase money of the patent. Price paid \$750.

A. E. BLAKE, D. D. S., San Francisco.

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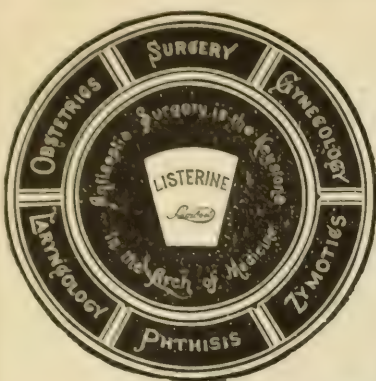
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- ☞ For cleansing and in operations the dilution has been varied from one to twenty parts water and one part **Listerine**, according to conditions and taste.
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To the Dental Profession.

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After having practiced Dentistry for fourteen years I determined in 1866 to make a Specialty of Dentifrices, with a view of producing an article which should not only be acceptable to the general public, but also be approved and indorsed by the Dental Profession.

In order to do this I made it a point to find out what were considered by Dentists to be the most important requisites in a dentifrice. I soon learned that, while opinions varied as to the best materials to be used, nearly all were agreed upon a few essential points, namely, that a *powder* was more effectual than a *liquid*, that it must be a powder free from harsh or gritty substances and perfectly soluble; that for universal use it should not be medicated, that healthy gums needed no tonic, and that in cases of diseased gums it should be left to the discretion of the Dentist to prescribe the needed remedy. With these facts to start with I then set myself to work selecting the best materials, combining them in the best manner and putting them up in the most convenient form. I need not say that this has been a work of years, and that I have been all the time studying and learning, until now, after an experience of eighteen years, I can confidently present my **Tooth Tablets** and my **Tooth Powder** as the result of my labors. They are made from the same materials, but put up in different form, each in ENAMELED METAL BOXES, which are free from the mishaps incident to glass or wood, and best adapted to the wants of the people, especially those who travel.

They will be found in all the leading stores where such goods are sold, and where Dentists can recommend their patients to call for them. This obviates the necessity of Dentists keeping such preparations, which has proved by experience to be generally unprofitable. I should be pleased to forward a sample of my TABLETS or POWDER to any Dentist, free of expense, on receipt of a postal card giving address, that all may have an opportunity to test its merits. I am,

Respectfully yours,

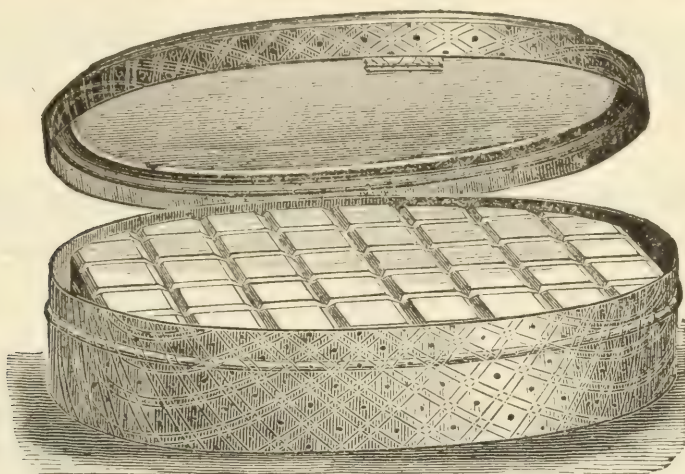
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61 CEDAR ST., NEW YORK.

New York, March 1, 1884.

ESTABLISHED 1866.

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PRICE 50 CENTS A BOX. SOLD BY DRUGGISTS AND DEALERS GENERALLY.

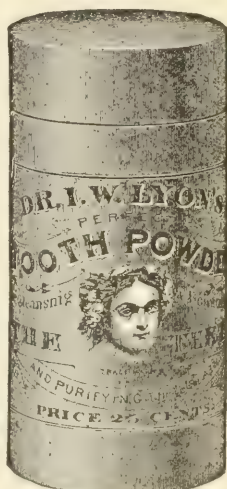
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THE
Independent Practitioner.

VOL. V.

NOVEMBER, 1884.

No. 11.

Original Communications.

THE HERBST METHOD OF FILLING TEETH.

BY C. F. W. BÖDECKER, D. D. S., NEW YORK.

For the last two years a new method of packing gold, tin, and amalgam into cavities of teeth has been discussed in the majority of dental journals, and much has been said against the practicability of this method. During my visit to Germany I made it my special object to inquire, as far as possible, into the merits and demerits of this invention, and have, to a limited extent, employed it in my own practice. The inventor, Herr Wilhelm Herbst, an ingenious dentist of Bremen, Germany, who has practiced this method for nearly six years, is able to apply it in every cavity, and with apparent success; but whether the gold of contour fillings introduced in this manner will stand the wear as well as those made by the mallet, I am unable to say. But the method, even as it is now, in its infancy, will, I believe, when understood and applied to suitable cavities, not only save the operator a great deal of time and trouble, but will provide a better adaptation to the walls of the cavity than is possible by any other method, unless at the expense of a great deal of time, care, and skill.

While visiting the inventor I made a series of experiments, which (although I have lost the record of the exact time occupied, and their comparative weights) may be of some practical value here. I

will therefore, before discussing the method, very briefly describe some of these experiments. For the desired purpose we made use of a matrix composed of two pieces of steel joined together by a pin, which, when put together, resembled somewhat a bicuspid tooth with a large, deep cavity in its grinding surface. Into this cavity several rather deep pits were drilled all around its wall. No dental practitioner would make such excavations in the wall of a tooth, but for the sake of testing what the new method would accomplish we proceeded in that way. We alternately filled this cavity in different ways, and with different preparations of gold, Herbst employing his method, while I made use of the Bonwill mechanical mallet. The experiments were made with gold foil in the form of cylinders, folded foil, and foil twisted into the form of a rope and cut into pellets. The first gold used was that of Carl Wolrab, of Bremen, Germany, and the cylinders were used without being heated. The time required by Herbst to fill the steel cavity was about twelve minutes, and when the matrix was separated the plug was found to be perfect, even in the deepest pits. Although the gold had not been annealed, and showed no signs of cohesion before packing, not a particle could, by ordinary pressure with the fingers, be broken off. This proved that the several cylinders were united to a comparatively solid mass, which upon hammering proved to be quite malleable. The introduction of the same gold into the same cavity by the Bonwill mechanical mallet occupied, I believe, about thirty minutes, but when the matrix was separated the surface of the plug was found to be imperfect in some of the deep pits, although its weight was considerably more than that made by Herbst. Slight pressure with the fingers separated the plug into two pieces, which by hammering crumbled into several smaller ones. The other two experiments, in which the gold had been used without being brought in contact with the flame of an alcohol lamp, gave about the same results; but how different were those obtained from gold which, previous to its introduction, had been annealed. In this instance the packing of the gold by rotation (the Herbst method) required more time, and yet the plug, when removed from the matrix, showed imperfections upon its surface, and its weight was less than that which had been made by unannealed gold. Although the plug could not be broken by the fingers, it separated into several pieces under the hammer. The experiments made with

Wolrab's gold when annealed and introduced by the Bonwill mallet, when compared with those of the same instrument when the unannealed gold was used, showed very little difference either in weight or in external appearance. But the several cylinders were firmly united, and the mass could be hammered without crumbling in pieces. The experiments made with the gold of our American manufacturers gave about the same results when packed with the Bonwill mallet, but very different ones when introduced by the Herbst method. In no instance was the surface of the plugs introduced by the latter as perfect as when made with Wolrab's gold, and their weight was less than that of those made by the same methods where German gold was employed, although more time was required to introduce the American preparations.

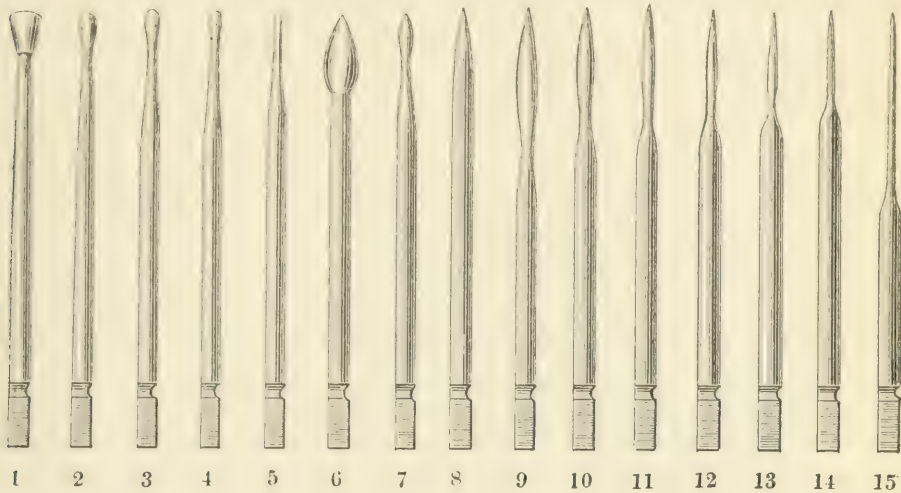
The conclusions we arrived at from these experiments were that one of the principal requirements for the successful practice of the Herbst method is a very soft quality of gold, which by rubbing with the burnishers becomes cohesive. The first layers of gold that are introduced against the walls and edges of the cavity ought not be annealed, nor even warmed, but as the filling progresses nearer to the surface, or in contour operations, slight warming or even annealing will be found necessary. The form of gold best adapted, especially for the beginning of an operation, is cylinders, and of all the preparations used there were none which worked so well as those of C. Wolrab, of Bremen, which seem to be especially adapted to this purpose. The walls and edges of a cavity can be very perfectly filled by this method, with much less trouble and care than is necessary when the mallet is employed, besides requiring less time for the introduction of the gold. Although the body of a filling made by the Herbst system is probably not quite as solid as when done by the mallet, yet the adaptation to the walls of the cavity is much better.

Before describing the method of filling different cavities I will allude to some general rules which hold good for all operations. It is almost a universal law that the filling of cavities which by the old system gave us the most trouble, are easiest to fill by the Herbst system. The uppermost layers of cavities in the grinding surfaces, however, which by the mallet system is very simple, are a little more difficult to complete by the new process. A great deal of attention must be given to the beveling of the edges in cavities that

are prepared to be filled by the mallet. In the Herbst method this is not only unnecessary but objectionable, as the edges when much rounded are rather difficult to fill perfectly, unless the matrix is so adjusted that the gold extends a little out of the cavity. But the best results will be obtained, at least in the proximate surfaces of molars and bicuspsids, when the edges of the cavity are made perfectly smooth and rounded off but very slightly. Nor is it necessary to make deep retaining or starting points, but the cavity should be so prepared that its general form will securely anchor the filling. When a proximate cavity has been prepared in the manner above described, and the matrix applied properly, the filling in this situation will require but very little finishing, which, especially when under the gum, is a very painful and troublesome procedure. A point of great importance in proximate cavities or contour operations is the adjustment of the matrix, which must be applied firmly enough so that it does not move during the introduction of the filling materials, for to a certain degree success is dependent upon the stability of the matrix. The object of this instrument is to convert a cavity which possesses but one, two, or three side walls into one with four side walls, and, as has been mentioned before, there will be but little finishing required after the introduction of the filling material. The matrix that is used for the most of the proximate surfaces is made from a piece of annealed watch or clock spring, or wood, but for operations where lost portions of teeth have to be restored, shellac may be employed. Although Herbst can accomplish almost everything with the matrices above mentioned, I am convinced that a screw matrix, which could be so firmly applied that motion during the introduction of the filling material would be impossible, will simplify this method in many instances. I have therefore constructed a universal screw matrix which, if it proves a success, I shall describe in a future number of this journal.

The instruments for the introduction of the filling material are mostly ordinary smooth burnishers made of steel, although I believe that any other hard material, such as blood stone, agate, etc., would be far superior to steel instruments. One of the principal objections to steel instruments is that in use they rapidly become coated with a film of gold, in which condition they cannot be employed to condense a newly added layer, as the gold on the instrument will cohere to that just added to the filling, and will conse-

quently be pulled out of the cavity. When a layer of gold has been thoroughly condensed with a clean, bright instrument, however, it is an advantage to burnish the surface with one which is



coated with gold, as an instrument when used under these circumstances will roughen the surface and make the gold cohesive. To neutralize the coating of the instrument with gold, Herbst recommends that they be rubbed upon a piece of pure block tin. But it is evident that by so doing some of the tin will adhere to the instrument and it will be incorporated in the gold of the filling, which after a time may alter the color of the finished work. I have for this purpose used, with good results, fine crocus cloth, but it requires a little more time than the use of tin. During an operation at the November or December clinic of the First District Dental Society, Dr. Wheeler, of Albany, handed me a small blood stone, which I used for burnishing on the last layers of gold. This worked better than any steel instrument I have ever used in introducing gold by rotation, as not a particle of the material adhered to the instrument.

The introduction of the gold, which is the main new feature of the Herbst method, is sometimes attended with some difficulty, but if certain general rules are observed, it becomes quite simple. It is probably owing to this that many gentlemen who have tried this method of filling teeth and failed, have done so on account of not being acquainted with the general principles of the system. During the introduction of the filling material we observe a peculiar

phenomena; namely, the gold which, when unannealed, apparently shows no signs of cohesion, working as soft as tin foil, when burnished becomes quite cohesive. What can be the reason for this I am unable to say; there is certainly not enough heat developed to cause it to become cohesive, nor should electrical action during rotation exert an influence upon it. It is certain that the German gold possesses this property in a very marked degree, and it is largely owing to this that the Herbst method is crowned with success. The main rule to be observed in the beginning of a filling is that the first layer of gold must be large enough, and when condensed must lie secure in the cavity without being supported by an instrument. This is accomplished by packing the cavity loosely, but quite full, with the largest number of gold cylinders that the entrance of the cavity will admit, without, however, trying to condense the gold by means of hand pressure. When too little gold has been put into the first layer, or a number of too small cylinders are used, and an attempt is made to condense it, the gold will roll away under the instrument and become too hard to be again adapted to the walls and edges of the cavity. The same condition will be observed when the first instrument used in condensing the gold has been too small. For this purpose one of the pear-shaped instruments (Nos. 1 to 4), as large as the entrance of the cavity will permit, must be used. The first layer of gold must not be permitted to move at all during condensation by the rotatory instruments, as a failure is inevitable when the first gold introduced against the walls or edges of the cavity has been allowed to move. In using these instruments care should be taken not to run the engine too fast, nor to allow the burnisher while in motion to be in contact with the gold longer than from one to three seconds, otherwise it will heat the gold to such an extent as to cause discomfort, or even great pain to the patient. The best manner to work them is, perhaps, somewhat analogous to the action of the slow automatic mallet, where by pushing against the plugger point we obtain the blow, but after this we have to lift the instrument again to allow the spring to force the point forward. So it is with this method; first, the burnisher is pressed firmly upon the gold for a few seconds, after which it must be allowed to cool for a second or two. When manipulated in this manner it will be found that the heat developed is so small that it will cause no inconvenience whatever to the patient. When the

gold has been burnished down into the bottom of the cavity by one of the pear-shaped instruments, it is thoroughly condensed with a roof-shaped instrument, No. 5, in such a manner that the point of a hand plugger cannot condense it any more when firmly pressed along the edges and walls of the cavity. The last named (roof-shaped) instrument is easily made of a broken bur, by putting it into the engine, and while in motion grinding its point upon an oil stone. In some situations, as the buccal walls of molars and bicuspid, when the gold cannot be condensed by direct action of the instruments, the right angle attachment should be employed. All succeeding layers of gold are packed in the same manner as above described, but the nearer the gold comes to the surface the more attention must be paid to the condition of the revolving instrument. At the beginning of every fresh layer it must be rubbed upon a piece of crocus cloth to free it from gold particles that may adhere to it. When a number of layers have been secured and all the walls and edges of the cavity are covered, it will sometimes be found necessary, if the operation is to be concluded by the Herbst system, to slightly warm or anneal the gold and press it into the required position by hand pressure before rotation upon it is commenced. With reference to the results of the experiments which I made with the inventor, I deem it safer, especially for a beginner with this system, to finish an operation in the old accustomed manner. The experiments demonstrated that the walls of a cavity, when filled by the Herbst system, are more perfect, although it did not weigh quite as much as the one made by the mallet, which showed imperfections upon its surface. Therefore, the center of the plug made by rotation could not have been as solid as when introduced by a mallet. I admit that the specific weight of a gold plug is not of great importance, but the more solid a filling is upon its grinding surface the better it will wear. Furthermore, the adjustment of the last layers of gold requires almost as much time as when made by the mallet. As I desire that every dental practitioner should be benefited by this mode of practice, I would advise him to make some experiments upon natural teeth, set with their roots in plaster, before attempting to apply the method in the mouth of patients, although it will be found that it is easier, especially with this method, to fill a cavity in the mouth than in an experimental way out of the mouth.

Tin and gold combined, tin foil, and also amalgam, have been packed by the Herbst method with great advantage, and the inventor even claims the amalgam can be packed under saliva without impairing its durability. Whether this is so or not I am unable to state. I certainly should prefer, if possible, to have every cavity dry and well disinfected before the introduction of the filling material.

I will now describe the method for special cavities, and will begin with those which are the easiest to manipulate.

I. Distal surfaces of bicuspid and molar teeth: After the cavity has been prepared and the rubber dam adjusted, a matrix is applied, which, if the cavity to be filled faces on another tooth, is best prepared from a small piece of a previously annealed clock spring. This is placed between the two teeth, and if the separation between them is very small it may be secured by pushing two pins (one from the buccal, the other from the lingual surface near the gum) between the matrix and the adjoining tooth. In some instances the next tooth also contains a cavity of such dimensions that it is impracticable to secure the matrix firm enough by means of pins. This difficulty may be obviated by filling the opposite cavity tightly, either with cotton or previously warmed shellac (the matrix having previously been put in position). When the adjoining tooth is missing, or the space between the teeth is very large, a block of wood firmly fitted against the steel matrix may be used. If this cannot be accomplished, the loop matrix intended for use in teeth standing alone will answer the purpose. The matrix being in place and the cavity having been thoroughly disinfected and dried, it is ready for the introduction of the gold. Two, three, or four large gold cylinders are, without attempt at condensation, loosely placed in the cavity by a hand instrument. One of the pear-shaped instruments (Nos. 1 to 4), as large as the entrance of the cavity will admit, is placed in the engine, cleaned upon crocus cloth, and with it, while in rotation, the gold is compressed first into the bottom and then against the side walls of the cavity. This being done, one of the roof-shaped instruments (No. 5) is placed in the engine, and while in rotation cleaned upon an Arkansas stone. The gold is then thoroughly condensed into every depression, and especially against the matrix and edge of the cavity. In this manner layer after layer is introduced until the cavity is filled; or, as mentioned before, the last layer may be packed by the mallet.

The introduction of the gold into cavities situated in the mesial surfaces of molars and bicuspidis is a little more troublesome. The anterior edges and walls of the matrix in these localities cannot always be reached by direct action ; right angle attachment in these cavities is therefore indispensable. In bicuspidis and first molars the gold may be first condensed with a straight instrument, but in every layer this should be followed by a No. 5 burnisher in the right angle attachment, which while rotating is firmly pressed forward against the matrix and edge of the cavity.

The packing of gold in cavities upon the grinding surface of molars and bicuspidis is somewhat different. The first layer introduced must extend over the whole surface, and be sufficiently thick to lie quietly when the instrument (No. 5) is used to condense it into the several depressions of the cavity. When the first layer has been securely condensed by this method the next one is much easier. To facilitate the packing of the succeeding layers the gold cylinders may be warmed, or even slightly annealed, and by means of hand pressure partially condensed before rotation upon them is commenced. The instrument used after the addition of every new layer must be as large as possible and absolutely clean, and be applied (especially at first) with considerable pressure. When the operation is nearly completed I would advise, especially for beginners, that the operation be finished by the mallet.

Proximate surfaces of the incisors can be very easily and quickly filled by this method. The cavities are prepared in the same manner as for filling by any other system, with the exception that no starting points are made; a slight round undercut at the cervical wall and one toward the cutting edge of the cavity is amply sufficient. The separation required for this method is not more than when the cavity has been prepared for other methods. Herbst fills all these cavities with a No. 5 instrument, but I have lately used a burnisher made of a small round bur, which worked very satisfactorily. The introduction of the first layer of gold is materially the same as in former instances, but the uppermost layers are a little differently manipulated, especially when there are two cavities to be filled which face each other. Such cavities (as Herbst suggests) may be filled in the following manner: When the first layer in both cavities has been thoroughly condensed, more gold cylinders are added in both cavities and condensed as though these were but one.

When sufficient gold has been introduced the two fillings are separated by No. 14 (an ordinary fine sewing needle secured in a mandrel or needle chuck), which while rotating is pressed through the median line of the fillings in several places. The two fillings are further separated by means of a thin clock-spring saw, the edges thoroughly condensed with one of the pointed burnishers (Nos. 12 to 14), and finished in the accustomed manner.

Proximate surfaces of the incisors, when their lingual walls are broken, are comparatively easy to manipulate. In these instances a matrix is applied to the lingual wall, which may be made in the following manner: A piece of shellac the size of a large walnut is warmed over an alcohol lamp to the consistency of putty, and pressed against the lingual wall, extending a little over the cutting edge of the four or six front teeth. If any of the shellac is pressed into the cavity it must be carefully removed by cold excavators while in position, or the matrix after it has become hard may be removed from the mouth, trimmed as desired, and put back again into its place. When the labial wall of such a cavity is broken to such an extent that the gold can be easily packed from the labial surface, an additional steel matrix must be applied against the proximate surface of the cavity. This matrix may be secured by either pins, wood, cotton, or it may be warmed and pressed into the shellac matrix of the lingual surface. This steel matrix (made of a piece of clock spring) must not quite reach to the labial surface of the tooth to be filled, as it may offer an obstruction to the introduction of the rotating instrument. No difficulty will be found in the introduction of the gold, as its manipulation is carried on in the usual manner.

Contour operations of the cutting edges of the front teeth have only been accomplished by Herbst within a comparatively short time. Little, therefore, can be said of their practicability, although they require comparatively little time. One of the preparations sent to me by the inventor, involving the mesial, distal, and about one-sixteenth of an inch of the cutting edge of a lower incisor, only required forty minutes' time for the introduction of the gold. The principal difficulty in these operations is the making of a proper matrix. When this has been accomplished the filling is comparatively a simple matter. A matrix is prepared of warmed shellac, which (as described above) in this condition is pressed be-

hind the lingual walls of the four or six front teeth, extending for a little distance over their cutting edges. The proximate walls are enclosed by pieces of clock spring, adjusted on both sides and, when possible, fastened independently as well as into the shellac matrix of the lingual wall. A third piece of clock spring is then adjusted across the cutting edge of the tooth to be restored. When thus arranged these matrices form a simple cavity, with four side walls, into which the gold is easily packed.

A CONSIDERATION OF THE COMPARATIVE MERITS OF WATTS' CRYSTAL GOLD AMONG FILLING MATERIALS.

READ BEFORE THE NEW ENGLAND DENTAL SOCIETY, BOSTON, OCT. 3, 1884.

BY J. F. P. HODSON, D. D. S., NEW YORK.

It is with much diffidence, and yet with a lively sense of the honor you have conferred upon me in extending to me the special and very kindly invitation to appear before you, that I am here to-day, and while thanking you for the distinguished courtesy of which I am the object, I cannot but feel how much more you might have bettered the selection of your object than your subject. There are few, if indeed there be any, subjects that could more properly engage our most serious consideration than the comparative merits of filling materials for the teeth, as few I think will question that whatever our surgical or other dental skill or abilities, the perfect stopping is, in a very real sense, the *ultima thule* of all dentistry. As, however, it has been very delicately hinted to me by your committee that your especial hunger is for practical facts rather than theoretical disquisition, I will plunge at once into the midst of them by the introductory premise that "Watts' crystal gold" is not to be confounded with any of the other so-called crystal golds that are offered us from time to time. It is, as is clearly shown under the microscope, an interlaced mass of perfect golden fern leaves, that are deposited from and in the continuously saturated solution of gold by a process of electrical action, while all others that I have ever examined show no organization whatever, but are a mere agglomerated mass of gold particles which cohere tempora-

rily like wet sand, and afterward disintegrate like dry, and are, moreover, produced by chemical action, mercury, etc., etc., methods which were experimented with and abandoned by Watts twenty-five years ago.

I have used this beautiful form of gold exclusively for something more than fifteen years, and associated with other golds before that time, and so affirm but what I know when I state that all operations which can be accomplished with any other gold or by any operator can be as perfectly accomplished with this, and with less expenditure of force and strain, and, indeed, in every sense far greater ease of manipulation than with foil golds. Crystal gold, moreover, possesses some excellencies which do not obtain in foils, one of which is the steel-like hardness of surface of the fillings produced with it, which in grinding surfaces is so especially valuable for their resistance to and withstanding of the battering force of mastication and of the cusps of opposing teeth, and in the exquisite perfection with which it adapts itself—*under honest manipulation*—to the walls of the cavity. Indeed, so close and perfect is this that the delicate pointings of the microscopic crystals have been shown to have entered the open ends of the dentinal tubuli themselves. This waxy adaptiveness would be under any circumstances a most valuable attribute, but it becomes doubly so when taken in connection with the fact that the gold is condensed with so little force as compared with foil. In such circumstances, for instance, as very frail front teeth, where, for the sake of appearance, it is often expedient to save every atom of even thin remaining enamel, the value of this quality in crystal gold is inestimable. I wish to be perfectly understood with regard to the condensation of crystal gold in these instances. The filling should be, and of course is, with faithful manipulation of this gold with small points, practically as closely adapted and as well consolidated against those walls and throughout the stopping as if against strong walls, and all this where a proper condensation of foil would be far more likely to rupture the enamel, even granting to the foil the most skillful manipulation. If crystal gold can be depended upon to do such delicate and refined work among “eggshells,” I deem it a work of supererogation to enlarge upon, or even do more than suggest the point to intelligent professional gentlemen, what must be its capacity for easy and perfect adaptation in

the great mass of the usual cavities having strong walls. This wonderful combination of all the compliant and waxy characteristics of "soft" foil with even more of the cohesive quality than is possessed by most cohesive golds, and superadded to this a very hard finished surface peculiarly its own, are the especial characteristics of Watts' crystal gold.

As I have previously said, I have used this form of gold exclusively for more than fifteen years, and although I always have a quantity of other golds in my gold drawer and obtain most of the new varieties as they appear, keeping them more or less even on my trays, because I despise the prejudiced and obstinate riding of a hobby, and always feel ready to use any gold or any material with which I can produce the best results in each and any individual case, I am nevertheless wholly unable, as a general rule of every-day practice, to find any place in any cavity where I can possibly employ them to any advantage as compared with crystal gold, and am constrained to store away the pellets and cylinders, etc., in the body of large stoppings from time to time, *to get rid of them*. Aha! I hear some captious critic say, "So you *do* manage practically to combine foil with your crystal gold, after all." By no means, gentlemen. I merely seek to dispose of the, to me, useless material by putting it where possibly many of you would say "it would do the most good," but where I would say it could do the least harm, in the center of a large stopping, precisely as I would stow away pieces of crystal gold that had become in any way somewhat condensed, and so, in my opinion, unfitted to place next the walls.

One exception, however, to my exclusive employment of crystal gold that I wish to mention is, as a mere matter of extra prudence, my habit of binding together a largely built-out restoration in gold with occasional narrow strips of heavy foil, feeling that the magnificent hardness of crystal gold might possibly militate against the toughness and consequent integrity of a long, thin restoration. Besides this negative proposition, as to my employing no other gold, I wish to place the positive one that, so far from employing it only for usual operations and then plastering up all the difficult or large ones with amalgam, I almost never (probably not nearly as often as I ought) employ amalgam or other plastic filling materials for permanent teeth, and as seldom order teeth out. I say all this in order to make the point, and to make it plain, that I *never*

hesitate about doing any operation whatever with crystal gold, that I depend upon it for all and any dental stoppings or restorations whatsoever, small and great, easy and difficult, and that if any failure occurs (and I am not, I hasten to assure you, one of those transcendent operators who never, never have them), I know the failure to be consequent upon my somehow or somewhere defective manipulation, and not any fault of the gold employed. For instance, if I were to "take a piece as large as the cavity" (as for many years the instructions accompanying it directed, and as some operators who use it apparently do now) and jam and plaster it into the cavity, trusting to some magic of affection in the gold to seek out the walls and cling to them, I should fully expect, as a consequence, the leaky and worthless stopping that is so often seen, and which advertises to all who see it, not the incompetency of the gold, but of the operator who essayed to place it. Notwithstanding the beautiful, even silky, softness and pliancy of crystal gold as it takes its place in the cavity, it becomes hard under manipulation, and that very quickly, and being cohesive to the last degree must be treated, after this first placing in the cavity, like cohesive foil; and as I have said in a previous paper, if crystal gold be given the same honest care that a conscientious operator would, in like circumstances, apply to cohesive foil, he would surely produce the same perfect stopping, and in addition receive the benefit of the grand combination of the special beauties and advantages contained in *both* soft and cohesive golds.

It is absolutely imperative that the first pieces of crystal gold be held immovably in the position in which they have at first been placed, and retaining points, at an angle of the cavity, may be employed for the purpose. My own very decided preference, however, and the method which I employ wherever possible, is to arrange to hold the completed stopping by the general shape of the cavity, rather than by means of the deep pits so often employed, as I greatly deprecate any unnecessary reaching out toward the pulp with conductive material. The first pieces may be held accurately to their first position by means of a pointed instrument in the left hand, continuing its employment until in condensing these first pieces and proceeding with the stopping, the shape of the cavity is found to hold the gold securely without it, condensing each piece finally as one progresses, exactly as a careful operator would proceed with cohesive foil, for,

as I have before remarked, crystal gold *when first applied to the cavity* is waxy and adaptive as is the softest of soft foils, but there this similarity ends, as it should. This first application being once made, it must be treated thereafter precisely as though it were cohesive foil. A good operator when applying a cohesive foil pellet to the cavity would not proceed to disintegrate it by punching it full of holes with a sharp point. Neither would he, on the other hand, attempt to model large, thick pieces of it into position with "spoon" modelers, and expect anything but a worthless, uncondensed cavity, full of something akin to loose shavings or sheet-iron scraps as a result. Neither would he jam a large mass of cohesive foil into a cavity, and by thrusting wedge-shaped instruments down through it expect to force it to spread out sidewise and form the perfect adaptation to the walls of the cavity which the merest professional child ought to know is the *sine qua non* to the saving stopping. And yet operators do all of these things, commit all of these sins against crystal gold, and then shower maledictions upon the material for the results. "You miserable lamb," says the wolf, standing in the stream above him, "how you have roiled up and spoiled this water for me; I will destroy you." If operators would but take the cake of gold carefully and gently between the fingers of their left hand, and with long pointed tweezers in their right as carefully push off without too close approximation of the points of the tweezers a trayful of small pieces, and then, the rubber dam being in position on the tooth, the cavity dry, etc., take up one of the pieces on the end of such filling instrument as would be employed were cohesive foil pellets used, carry it through the annealing flame and to the position in the cavity where it is designed to commence the stopping, hold it absolutely still until it has been fully and entirely condensed, employing any means of condensation that would properly consolidate pellets of cohesive foil, add other pieces in the same manner, still holding the compacted portion immovably until it will, of a certainty, hold itself, adding no single piece, however, till that already in the cavity has been fully and finally consolidated, never changing the position of any pellet after its first application to its place, using so small pieces as to be *sure* that no piece is added which, from its size or thickness, they could not with absolute certainty condense throughout its substance without chopping or punching it full of holes, packing directly against the

walls of the cavity, and remembering that no cohesive gold spreads or wedges out under manipulation like soft foil, and that, consequently, all packing must be done directly upon the part desired to be compacted—in a word, proceeding throughout the operation precisely as though it were cohesive foil pellets which were being employed—my word for it they would be surprised and delighted to find how they would be accomplishing the same results with this gold as with foil, and with how much greater ease and pleasure and delicacy they were doing it.

If they continued to the end of the placing of the gold, and polished and finely finished the exposed surface, they would find in that such resisting, steel-like hardness as is implied in the fact that a patient will return days afterward to have a mere nothing taken off from the surface. My own preference has always been for No. 1, in contradistinction to the more condensed Nos. 2, 3, and 4, and for such delicate handling of even this as that it shall certainly *be* No. 1 when it reaches the cavity, and not have been handled and pressed into the equivalent of Nos. 3 and 4, as the very essence of the value of crystal gold, to my mind, lies in the great difference in bulk between the exquisitely soft, silky state in which it comes to us, and its finally consolidated one in the cavity, and that this great change taking place under the guidance of the instrument of the operator implies all of the possibilities of the marvelously close adaptation to the walls of the cavity of which I have spoken, but which regal attribute of crystal gold is deliberately thrown away by using the condensed Nos. 2, 3, and 4, and equally so by the careless handling and squeezing of No. 1. In short, I want to do all of the condensing *in the cavity*.

The ultimate end desired by us all, with our varied methods and golds, is the goal of the perfect stopping or restoration, and each being devoted to his own method and becoming skillful in it, it becomes *his* best one, and we may learn much from these specialists, even though we ourselves may either not be specialists, or even do not at all employ his particular method.

The soft foil operator teaches us much about adaptation. The heavy foil man perhaps the want of it. The cylinder operator rapidity of operating. The electric foil man lauds its lead-like ductility. The cohesive foil man his general power to restore beyond the cavity. *Chacun a son gout*. But it is obviously unfair for

one man to test another's method or material by his own manipulation, and then depreciate Pegasus because he won't yoke with the ox!

There are many different ways of getting from New York to Liverpool, and barring accidents one reaches there certainly by any one of the many lines; but as between them one's comfort and pleasure on the way and his condition upon arrival there are questions upon which each will have his own opinions and predilections; but supposing one to have been long accustomed to the cabins of a "Cunarder" or an "Inman" in his passages across, and upon the representations of a "White Star" patron decides to try, say the Germanic; it is certainly very unhandsome in him, not to say ridiculous, after having heedlessly stumbled down into the hold at the beginning of the voyage and as heedlessly remained there to the end of it, to go stamping about Liverpool upon his arrival out exclaiming against the manifold discomforts of the White Star Line and his passage, complaining that he was rolled and tumbled about, cut and bruised, until he was "all broken up," indignantly repudiating a suggestion as to his being intoxicated, and denying that he had been in that, to him, detestable condition from the first, declaring that he was indeed so very badly off that he must now go into the hospital to be made over, and that if there was any one thing sharply defined in his mind it was that he'd nevermore use that means for getting to Liverpool again.

"What's that you say—elegant promenade deck, and superb dining and sleeping cabins, reading room, smoking room, and all that? I don't believe it; I never found 'em." Surely such a passenger as this is quite as competent to judge between competing ocean steamers as is the operator who has bunglingly and unintelligently tested crystal gold by either exclusively soft or cohesive gold manipulations, to speak of its comparative merits.

CLINICAL OBSERVATIONS AND LABORATORY EXPERIMENTS.

BY C. M. WRIGHT, D. D. S., CINCINNATI.

READ BEFORE THE AMERICAN DENTAL SOCIETY OF EUROPE, AT ITS MEETING
AT VEVEY, SWITZERLAND, 1884.

Dear Brethren:—At this, the twelfth annual meeting of the American Dental Society of Europe, I cannot help being present as

a ghost, or in spirit, never having failed to present some sort of an appearance each year since the first feeble beginning of the Society on the Rigi. Distance has not prevented me from presenting letters to the society at the last two meetings, and I shall deem it a privilege to be allowed to do so again.

The American Dental Society of Europe is to-day, perhaps, one of the most important dental organizations in the world. It does much and good work; its members have excellent opportunities for original observations, and have no personal axes to grind; its reports are fresh and full of interest; its papers are looked forward to by the dental world with eager expectation; it numbers many of the most distinguished men in the dental profession of the day in its list of members; dentists, distinguished either in the operative and clinical department, or in the experimental department as laboratory investigators, bring the results of their labors to your annual meetings, and you reap the benefit by seeing yourselves placed in the front rank of societies. As a school or university becomes distinguished on account of the importance of the work and the reputation of its professors, so do societies take rank according to the character and work of the members. Every member of the American Dental Society of Europe, no matter how modestly he may view his own work or attainments, has reason to be proud of his position as a member of a society that has taken the lead, through one of its members, in scientific laboratory investigations. Recently the editor of an able medical journal said to me: "The American dentists of Europe have among them the foremost investigators, by all odds, in your profession." I replied: "Yes, and among the members of that society are some of the foremost clinical observers of the day, too."

Schools, universities, and even nations obtain distinction in definite fields, at certain periods or generations. Germany, for instance, now has a reputation for minute pathological observations, and American students flock to the German universities to pick up the crumbs that fall from the laboratory tables, and progressive professors in American medical colleges spend their summer vacations in Germany, that they may visit certain laboratories and partially satisfy their cravings for the knowledge to be found there.

America is distinguished for the clinical knowledge and the aptness of her surgeons and dentists in practice. While residing in

Basel I often heard bright German medical students regret that New York was so far away, for if it were not, German students would flock to its medical schools to witness the great skill of its surgeons and operators.

A German dentist practicing in Southern Germany once remarked: "Yes! yes! the Germans have it *here* (pointing to his forehead), and the Americans have it *here* (working his fingers in the air). I am German, but I have been educated in America, so *I* have it *here, and here* (in head and in fingers)." I might remark that this combination forms an excellent alloy for the construction of large brass monuments, and may be made useful in the arts.

Which is the better reputation to have; the German or the American? Which will do the most good in the world? Which takes the shortest and best route to the goal? Can we discuss such questions as Laboratory Investigations *versus* Clinical Experience? It seems to me that there can be no question of *versus* between the two methods of searching for truth. The two *must* go hand in hand before truth (which lies in a well) can be reached. If laboratory investigation after careful experiments asserts that truth can be approached only with a copper-bottomed bucket and a galvanized wire for a rope, and clinical observation has time and again reached truth with an old oaken bucket and a pole, laboratory investigation must go over its experiments again, for evidently there has been a mistake in some of the steps.

If laboratory investigation says that copper amalgams do not exert any influence in saving teeth from caries, and clinical observation has found by years of trial that they do, and that when for a certain reason the dentist wishes to save a badly organized tooth in a bad position he puts a copper amalgam filling into its ragged cavity with a certainty of salvation in his mind, born of years of trial, certainly there must be an error somewhere; truth has not been reached. Either clinical observation has been careless, has not been strictly and scientifically conducted and therefore is not worthy the name, or laboratory investigation has made some mistake or been at fault in some of its observations. When the two agree we can feel assured that a scientific fact has been established, and we should throw up our hats and make a fourth of July celebration over it, no matter how our prejudices may have suffered.

Now, my dear brethren, I must admit that while highly pleased with one result of recent laboratory investigation, I have been slightly disappointed in another. From clinical observations extending over several years, and in the face of a prejudice and unbelief, I had become convinced that our tin and gold combination (advocated by dear Doctor Abbot, at the meeting of our Society in Geneva, in 1874) did possess *therapeutic* virtues aside from its purely mechanical property of perfectly stopping against septic influences.

I also had come to believe that base-plate gutta-percha, employed as a tooth stopping, had certain antiseptic or saving properties not possessed by other gutta-perchas; and I have been in the habit of classifying in my own mind copper amalgam, tin and gold, and red gutta-percha, as "therapeutic fillings." I could not give scientific reasons based either on chemistry or physiology, but from oft-repeated clinical experiments and from clinical observations I had faith in these fillings as possessing special saving qualities aside from any mere mechanical properties. I had come to have vague notions like these; first, perhaps the peculiar combination of the coloring matter in the base-plate gutta-percha, and the remarkable molecular changes that occur in the tin and gold combination when exposed to the heat and fluids of the mouth, and the chemical changes that take place in the oral cavity in copper and mercury amalgams, do produce permanent aseptic conditions in the tooth.

Or, second, that the same changes in these materials do cause just the right amount of healthy irritation to the protoplasm of the living tooth to stimulate it to protect itself by new deposits of less highly organized dentine. Garretson sustains me in the employing of copper in the cavity of a tooth, claiming that even a sprinkling of copper fillings in the bottom of a cavity tends to stimulate the pulp to throw out "secondary dentine."

Now, of course, these theories are of no value whatever, and are at the mercy of the intelligent laboratory investigator; but the clinical observations are the same. This, I think, is an important fact, and we must look to the laboratory for a correct scientific explanation, and then we may all feel that a truth has been revealed. The field of medicine is full of just such questions. In dentistry, as in medicine, laboratory investigation and clinical observation must agree.

Laboratory investigation must give good reasons for the facts of clinical observations, or the experiments must be gone over again; or clinical experiments must be repeated for proofs of the assumed facts.

Where can we, in our profession, have these things better established than in a society that so perfectly combines the head and the fingers as does the American Dental Society of Europe?

Brethren, the medical and dental worlds are "looking toward you" with great expectations and good wishes as you stand at the "bar" of the world, and I beg the privilege of looking toward every one of you, my old friends, as you sit at the final banquet and drink each other's health, before you say good-bye to Switzerland, the birthplace and cradle land of the American Dental Society of Europe.

THE BROMIDES IN DENTISTRY.

BY R. M. SANGER, D. D. S.

READ BEFORE THE NEW JERSEY STATE DENTAL SOCIETY AT ITS FOURTEENTH ANNUAL MEETING, ASBURY PARK, JULY, 1884.

Mr. President and Gentlemen:

The subject which I have chosen for my paper is not exclusively dental, and my excuse for offering it must be that since it is a large part of the dentist's mission to relieve human suffering, everything which aids in any way that end, or comes in as an adjuvant in accomplishing that purpose, should be welcome to the dentist and be found among his varied resources.

The peculiar effects of the Bromides, as seen in medical practice, suggest several therapeutic uses in dentistry, and on these and the results of their use in my own practice I base my claim to bring them before you. Though the effects of the Bromides are doubtless well known to you all, it will serve my purpose and make my subject clearer to briefly review their action and bring out a few of the salient points. While they differ slightly in their action and effect, I take the Bromide of Potassium as fairly representative of the group, and the one most commonly used.

The minor points of solubility, taste, etc., I will pass over, simply remarking that in consequence of its ready solubility in water

it is easily administered, while the taste is simply saline, and not highly disagreeable to any one.

It is more of its physiological effect that I wish to speak, and just here I will remark that we gain no aid in studying the effect of this medicine from its administration to the lower animals, as the results of a medicinal dose are very misleading, being to them a poison, while to man it is much milder, not a single case of acute poisoning having ever occurred. It is true that in large doses, long continued, certain effects are produced which might be classed as poisonous, but with these we have nothing to do, as my object is to show the use which can be made of a single dose. The immediate effects, physiologically considered, are:

- 1st. Depression of the heart's action.
- 2d. Diminished respiration.
- 3d. Lowering of the temperature of the body.

Bartholow's observations are that "two drams of Bromide of Potassium will lower the temperature in a healthy adult from one-fifth to one-half a degree, the respiration from two to five, and the pulse from ten to twenty beats per minute. The sensibility to pain, but especially the sensibility to tactile impressions, is lowered by the Bromides at all accessible points of the mucous membrane and the skin. The diminution of the sensibility of the mucous membrane is due in part to a local action of the salt as it is being eliminated. They also possess the power to destroy or impair the irritability of the motor and sensory nerves, and the contractility of muscle."

Now I can state categorically the therapeutic uses which may be made of Bromide of Potassium in dentistry, and we can all see and understand the *modus operandi*.

1st. We can use Bromide of Potassium to quiet cerebral excitement.

2d. We can use it to diminish the sensibility to tactile impressions in the mouth.

4th. We can administer it freely without any fear of unpleasant results.

Our brethren in the medical profession are demonstrating the value of the Bromides in these respects every day, and that not in serious maladies alone, but in the more trivial yet none the less disagreeable, just such as we meet every day in our own practice.

The physician is called in to see a patient suffering from severe mental excitement, caused, perhaps, by nothing more than a "scene" in the family. There is no disease, but simply that condition of cerebral excitement and reflex irritability vulgarly called "hysterics." Our clear headed physician perceives the condition, administers a full dose of Bromide of Potassium, and soon the peculiar effects are seen. The brake is applied to undue excitement and irritability, and a condition of peace and quiet follows.

The novice in public speaking having the ordeal of an address or lecture before him, knows by certain preliminary signs, and perhaps by past experience, that when he shall stand before his audience in a state of high mental excitement the follicles of the mouth and pharynx will close and leave the tongue cleaving to the roof of the mouth, the throat suggestive of a very dry spell of weather, the heart beating an alarm, a "globus hystericus" in the throat (the lump which can be swallowed but not kept down), the air passages so occluded in consequence of the nervous excitement that 100 breaths a minute seem a necessity, the hands and feet unable to find a resting place, and, more than all, the very opening sentence of a carefully prepared and well memorized address completely gone from memory. Now thus forewarned he goes to a physician and states the case. The one who is not familiar with the virtue of the Bromides may laugh and joke, but the one who does know orders thirty grains of the Bromide of Potassium, to be taken one-half hour before the time of need. And with this brake on nervous excitement the speaker comes up to the ordeal smiling, fresh and cool as a veteran.

The *Laryngoscopist* finds a patient who, the moment a mirror is placed in his throat, so far forgets himself as to try to swallow it. The examination of the larynx cannot be made. What is to be done? The trouble is simply reflex. The patient has the best intentions, but is helpless. Scolding is of no use. The physician simply orders a gargle of Potassium Bromide to be used frequently, and directs the patient to come again the next day. Then there is no trouble. The brake has been applied; the patient cannot be made to swallow the mirror, and the examination is completed with perfect ease.

And now I come to the practical part of my subject, to which these remarks have been leading. Certainly the results which the

physician obtains from Bromide of Potassium in his practice, in these trivial matters, as some may be inclined to call them, are highly suggestive to us as dentists, and may be applied in somewhat similar cases in our own practice, cases which, if not serious, are very trying to both patient and operator. I refer to all that class of troubles we meet characterized by cerebral excitement, heightened reflex irritability, or marked by hyper-sensitiveness to tactile impressions.

It is scarcely necessary for me to say that a perfect fitting denture cannot be made without a perfect impression, and yet how often we try to obtain a satisfactory result with one we know to be imperfect, because it seems impossible to get a better, since each attempt produces a paroxysm of coughing and choking on the part of the patient that compels us to withdraw the cup sooner than we wish. If this condition were due to foreign matter in the pharynx or larynx, actually impeding respiration, we should have no remedy; but since it is so often produced when that condition does not exist, it can be classed only in the same category of reflex disturbances that the *Laryngoscopist* meets, and this being the case thirty grains of Bromide of Potassium given immediately on the arrival of the patient will, one-half hour later, obviate this difficulty and render the patient as docile in our hands as in the hands of our medical friend.

Again; a patient presents herself desiring to have gas administered, but so nervous that she can scarcely sit still while you are making the examination, and sometimes with a doleful tale of how she almost "cleaned out" another dentist's office when he attempted to administer the anæsthetic, and he was compelled to perform the operation while she was only partially unconscious, thereby causing more mental suffering than if the gas had been dispensed with. Now the trouble is increased by the memory of that occasion. But it can all be remedied and the way made clear by the administration of from thirty to forty-five grains of Bromide of Potassium.

Again; how frequently we have patients who tell us that they dread the after effects of a sitting far more than the actual pain of the operation, as they invariably suffer from nervous prostration and headache for hours. Administer thirty grains of Bromide of Potassium about one-half hour before you begin, and the patient

will leave your chair after a sitting of an hour or more surprised to find himself as well as when the operation commenced. Then we can take a hint from the fact that Bromide of Potassium will lessen the sensibility to tactile impressions, and give a dose freely when we have a very sensitive tooth to deal with. The result I have found to be perfectly in accordance with what we should expect.

HIGHER DENTAL ATTAINMENTS.

BY J. G. PALMER, D. D. S.

READ BEFORE THE NEW JERSEY STATE DENTAL SOCIETY.

Considering the position that New Jersey has recently assumed, and the passage of our new law in regard to the practice of dentistry, it has seemed to me that if we have any regard for the dignity of our profession, and desire to advance its interests as a whole and not as a part, there is a better opportunity than has ever before been afforded us to enhance that dignity and assist that advancement, if we will only take the necessary pains.

I take it for granted that the most, if not all, of those here to-day have a greater or less degree of respect for the profession of their choice; that they have a certain amount of love for it, and that they revere it in proportion as it elevates and dignifies them in the eyes of the community at large. I may be speaking from my own standpoint too largely, but I should be loath to believe that there was any one here who had not a positive admiration for his chosen profession, and who would not be glad to do all in his power to advance its interests.

That such are the facts I think is proven by the presence of such numbers at our meetings, by the fact that society after society is being formed, that our membership is increasing, that our periodicals multiply, that such an increase of interest is evinced on all sides year after year.

You will ask, What has all this to do with higher dental attainments? Simply this; we must pay more attention to the ability

and attainments of those whom we admit into or induce to come into our ranks. By that I mean to refer to the young men whom we employ in *any* capacity in our offices, whether as students or workmen. From their ranks are to come, subsequently, those who will take our places and upon whom we must depend to carry out whatever plans we may have laid for the advancement of our profession. We cannot ignore their claims upon us. I think that many of us have been too lax in regard to this matter. We admit to the study of dentistry those who, while bright and intelligent and quick, need more preparation in the elementary branches of their education. I do not believe that any one can know too much. I do believe that the man who passes through his collegiate course at any good classical college before he enters upon the study of his future profession, be it law, theology, medicine, or dentistry, will certainly attain a higher position than the man who has not had such good educational advantages. There may be exceptions, but this will be the rule. Then, too, such an one will have an innate regard for dignity and honor in his profession, enabling him *at once* to come to the front in any field upon which he may enter. I do not by any means intend to disparage those already engaged in the practice of dentistry, and particularly those who have never had the opportunity to qualify themselves as thoroughly as they would undoubtedly have been glad to do.

But in New Jersey, hereafter, no one may begin the practice of dentistry without a degree from some reputable dental college. I think we have in this present state of affairs a grand opportunity to advance the interests of our profession, and to add to the standing of our State Society. Let us see to it that the young men who come into our offices and under our care and guidance shall have a thorough knowledge of all that should be required of them. Let us see to it that they already have at least a common school education, before we allow them to enter our offices. Let us assist them in their studies. Then, at the proper time, let them attend lectures. When they enter upon the practice of their profession they will have higher ideas of the dignity they have to maintain, and so shall we have caused others, if not ourselves, to achieve higher attainments in our chosen walk in life.

Reports of Society Meetings.

AMERICAN MEDICAL ASSOCIATION.

SECTION OF ORAL AND DENTAL SURGERY.

MEETING AT WASHINGTON, MAY, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY JNO. S. MARSHALL, M. D.,
SECRETARY OF THE SECTION.

(Continued from page 568.)

“Vicarious Catemenial Hemorrhage from the Gums, with Recession of the Gingival Margins and Alveolar Processes, the result of Amenorrhea;” by Dr. W. W. Allport, Chicago, Ill.

SYNOPSIS.

The subject of the report was a young lady aged twenty-five years, of slender form and nervous temperament. As a child she had enjoyed general good health. First menstruated at the age of fourteen and one-half years. For a time the menses were free and unattended with pain, but were from the first delayed from two to four weeks. This condition continued up to the age of twenty, when a period of six months elapsed with no appearance of menstruation. Since that time the menstrual periods have been still more irregular, with gradual decrease in the discharge, and accompanied at times with severe pain. Her health had been considerably broken down, and she was in a nervous, moody condition.

The young lady had been under the professional care of Dr. A. all her life, and he had noticed at about the age of twenty that the margins of the gums were somewhat tumefied and detached from the necks of the teeth, slightly receded, with a tendency to hemorrhage on mastication or when using the tooth-brush. No salivary calculus could be found about the necks of the teeth, or any discharge of pus. Pressure upon the gums over the congested portion, however, caused hemorrhage.

The oral condition at this time was treated by free scarification of the gums and an astringent mouth-wash, and she was advised to consult her family physician with regard to her general health. The case had been seen at frequent intervals during the intervening

years, and the same oral treatment temporarily adopted, but with only temporary benefit.

In October, 1883, I was again consulted regarding the condition of her teeth and gums; found them much the same as already described, except the recession had gradually progressed until the necks of the teeth were considerably exposed and the teeth slightly loose in their alveoli. She had grown decidedly anemic in appearance, and complained of her hands and feet being habitually cold. She had pains and weakness in the lower lumbar region, was easily fatigued, and once in every six or seven weeks, corresponding to the commencement of the catamenia, her gums would bleed constantly for from two to three days; the amount was small, but enough to tint the saliva, and this was accompanied with dull headache, increasing languor, and occasionally with epistaxis. The case was referred to the family physician, who upon examination found the vagina quite small, the uterus in a retroverted position with the cervix so antiflexed that he was unable to pass the sound into the cavity of the uterus.

Means were adopted to overcome the abnormal position of the uterus, which have proved entirely successful. During this treatment the Faradic current was used about the pelvis, and the patient given iron and cod-liver oil. After the first week of treatment steady improvement was observed. The first and second menstruations occurring after treatment was begun were delayed till the usual time, but were free and unattended with pain. At the third there was a slight show on the fourth week, but it came freely at the sixth week.

When last seen the patient's appearance gave every indication of being greatly improved. The hemorrhage from the gums has not occurred since the re-establishment of the menstrual flow; the gums have regained their normal color and attachments, except that they had not assumed their normal position at the necks of the teeth.

The mouth is now in a healthy condition, and the result has been accomplished with no other treatment than that adopted by the family physician for the amenorrhea.

DISCUSSION ON DR. ALLPORT'S PAPER.

Dr. Marshall—I have recently had under my treatment a case in some respects similar to the one reported by Dr. Allport.

The lady, Mrs. H., thirty-four years of age, was married eight years ago, and two years after gave birth to a son, since which she has been afflicted with a uterine displacement—antiversion—probably the result of subinvolution.

This condition has so affected her general health as to confine her to the house for weeks and months at a time. At every menstrual period she was obliged to keep her bed for from three days to a week, on account of severe suffering. Five years ago she first noticed an inflamed condition of the margins of the gums, and that they were receding from the necks of the teeth. Her dentist was consulted, and he removed a small amount of salivary calculus from about the necks of the teeth, and said that was all he could do for her, as the cause was hereditary.

In June of last year (1883) I was consulted by the lady with regard to the condition of her mouth. She said the recession of the gums had steadily progressed, and on examination I found the gums receded to the extent of about one-eighth of an inch from the necks of the teeth, and quite uniformly about all the teeth in both jaws.

I found but little salivary calculus in any part of the mouth, and what was discovered was upon the roots of the teeth, and completely covered by the gums.

The gums were congested at the margins and loosened from the roots of the teeth to the depth of from a sixteenth to a fourth of an inch.

Pus was found under the gums in those locations where the tartar was present.

The teeth were not loose nor sensitive to percussion, and there was no hemorrhage except when using the tooth-brush.

Upon further inquiry I ascertained the fact of the uterine displacement, and the history of the case as above stated, and that she had lately commenced treatment for that affection. I was of the opinion that there was some association between the uterine trouble and the condition of her mouth, for I could not find a sufficient local explanation to account for the manifestations in the oral cavity. I therefore removed the tartar (sanguinary calculus?), prescribed an astringent wash for the gums, and told her we would wait the results of the uterine treatment.

I have seen the patient several times since her physician began

his treatment, and have noticed a steady improvement in her general health.

She says (March, 1884) the uterine displacement has been entirely overcome, and that menstruation is now normal. The oral conditions are much improved in every respect; the congestion of the gums has entirely disappeared, no pus is to be found about the necks of any of the teeth, and the margins of the gums are firmly attached, but still leaving the necks of the teeth exposed.

This case, like that of Dr. Allport's is interesting, from the fact that the oral affection was but an expression of a disease located in a remote organ.

Dr. Williams—I have noticed the same conditions as those mentioned by Dr. Allport and by Dr. Marshall, and cases are not infrequent in which diseased conditions located in the reproductive organs find expression in the oral cavity. One marked case, accompanied by inflammation of the gums and discharge of pus about the necks of the teeth, occurred in a young woman married just a year, and whose mouth was in a normal condition just previous to marriage. It was evidently the result of excessive venery.

Dr. Stellwagen—I have seen two cases of vicarious catamenial hemorrhage from the gums and alveolus, occurring after the extraction of a tooth. One was a young lady troubled with a slight ulceration of the *os uteri*. Treatment of the ulceration resulted in the cessation of the hemorrhage.

Dr. Briggs—Moved that the discussion on the paper be now passed, and that Dr. Allport be given an opportunity to present the models of a peculiar case of irregularity and the methods adopted for its treatment.

AMERICAN DENTAL ASSOCIATION.

TWENTY-FOURTH ANNUAL MEETING, AT SARATOGA.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY PROF. CHAS. MAYR.

(Continued from page 564.)

WEDNESDAY, AUGUST 16TH.

MORNING SESSION.

The meeting was called to order at 10 o'clock A. M.; President Darby in the chair. The privileges of the floor were voted to Prof.

Chas. Mayr, of Springfield, Mass., and to Drs. Bazin, Lovejoy, Borden and Andres, of Montreal.

The discussion of the paper by Dr. Harlan, upon *Pyorrhœa Alveolaris*, was declared in order.

Dr. Shepard—Hoped that speakers would be exact in their expressions. He himself had said yesterday, "dilute sulphuric acid." That was inexact. He should have given the strength. He intended to have added, "in the proportion of one part of sulphuric acid to three of water."

Dr. Atkinson—If the speaker meant one part of acid to three of water, that would be much stronger than the tincture of *aromatic sulphuric acid*.

Dr. Shepard—I meant aromatic sulphuric acid.

Dr. Atkinson—Then the gentleman was not exact when demanding that others should be.

Dr. Searle—I love to ask the questions why, and what. In the first place, why do we use these various remedies? I think we have not gone deep enough into the nature of the disease. We hear it said sometimes that decalcification and caries are synonymous; also *Pyorrhœa* and decalcification. They are both diseases of the soft tissues. The lime salts have nothing to do with them. If I have rightly studied *Pyorrhœa*, I should declare it a disease of the *pericementum*. Originally it is set in action by some irritant, and that irritant may be tartar, low organisms, or mechanical irritation; but whatever may be the cause, the disease starts in the *pericementum*, and works itself far down between the alveolus and the *pericementum* before it makes itself manifest at all. The disease has been operating, usually, for a long time before we notice it, and unless we can apply our remedies to the special part affected by the disease, we might just as well throw them on the sidewalk. We all know that *ptyalism* and the various affections of the mucous membrane are not *Pyorrhœa*. We know that inflammation is not the disease in question until it progresses to a certain stage. Now, where does *Pyorrhœa* commence? We cannot define exactly at what point of the inflammation of the periodontal membrane the disease commences, but it is probably during the stage when the *pericementum* itself becomes involved in the disease. To cure the disease we have to remove all foreign matter; we must go down to the point of union between healthy and diseased tissue, and treat

it as a disease ; not as an injury. How shall we treat it? After removal of foreign matter we dress it like any other wound, as nearly antiseptically as possible; whether it is a germ disease or not I do not know, but in some cases it may be, and deserves as much an antiseptic treatment as any similar disease. The best antiseptic dressing I am acquainted with is carbolic acid, full strength, applied, as stated last night, far down to the point of union between the diseased and healthy tissues. What more can you do? The teeth cannot rest; you cannot apply a plaster, as to an ulcer of the skin; in ulcers around teeth the carbolic acid itself will form a coating by coagulation, which will keep out extraneous matter. How about repeating the treatment every few days? I would say let it alone, most severely. Having once performed an operation, amputated a limb and dressed it, let it get well alone; give nature a chance; do not disturb it. Somebody spoke of the application of external friction; this, I think, is perhaps the best way of removing food, foreign substances, etc., that lodge accidentally between the alveolus and the roots of the teeth. Let your patient place the finger low down, and move it up so as to compress the tissues, and then rinse the mouth with a bucketful of water.

Dr. Stockton—It does not seem necessary to say any more about the subject, as any one who kept his ears open last evening evidently knows everything about it. One gentleman, very prominent in the profession, said it was caused by deposits, and could be cured by remedies; another said it was not caused by deposits, and could not be cured by remedies; one said a saturated solution of an acid would cure it; the other said there was no such thing as a saturated solution. I do not know any more about it than I did before coming. I thank Dr. Harlan for his paper, and hope he will give us the etiology of the disease another year.

Dr. Hunt—I consider the disease constitutional, and think people and tribes who live simply in accordance with the laws of nature, have better teeth than the inhabitants of so-called civilized countries. I also consider the disease one of the symptoms of urinary troubles.

Dr. Searle—Cases at which I had been pegging away for five or eight years, have yielded in a short time to strong carbolic acid.

Dr. Pierce—I did not mean to say that urinary calculus was the cause of Pyorrhœa, but the systemic condition which is cause for

one disease, is also for the other. There are cases of pus in the alveolar socket, due to local causes; these removed, the disease will subside. Pyorrhœa is hereditary in many cases; I think if inquiries are made among patients, you will hear them tell that "father and mother lost their teeth in the same way;" "all the teeth of father and mother came out without decay, all sound," etc. I do not believe in the transmission of disease, but of tendencies.

Dr. Watkins—Dr. Pierce thinks the disease cannot be cured; I would like to relate a case where, I think, I cured it. It was one of the lateral incisors, elongated, pressed out of position, surrounded with pus pockets everywhere, except in one small space on the labial surface; the tooth was very loose; I examined it and found a very little tartar about half way up the root; I removed this and the border of the alveolus, which was necrosed; I applied aromatic sulphuric acid, full strength. A week afterwards the patient came again, and I found that I had overlooked a small spot; I treated this in the same manner, and dismissed the patient; this was three years ago, and the tooth is now sound in its socket.

Dr. How—Exhibited a few instruments; one a syringe with a fine platinum tube, the other a scaler to remove deposits by pushing or pulling, and the sides shaped so as to scrape the diseased alveolus.

Dr. Harlan—There is a wide difference between salivary calculus and Pyorrhœa. In the first affection the pericementum has not been detached beyond the line of deposit. In any event the salivary deposit is all around the neck of the teeth, and continuous, not broken up into islands. The pericementum cannot be lifted from the root of the tooth beyond the line of salivary deposits. Whatever may be the initiative of Pyorrhœa, if mechanical, chemical, traumatic, or anything else, it has a beginning at the gingival margin, on the ligament surrounding the neck of the tooth. It is believed, in connection with this injury, that micro-organisms of a peculiar form are found; that they manufacture a soluble ferment, which destroys the tissues in advance. If that theory be correct, it is necessary that a remedy to destroy these micro-organisms should be injected. The reason for the frequent injection is, that the remedy you use may destroy the developing organisms, but not destroy the spores, so that in three or four days it would be necessary to repeat the injection, and so on until all spores have been

destroyed; Dr. Black, of Jacksonville, has advocated this theory. It is no wonder that Dr. Pierce comes to the conclusion that the disease is not curable, if he uses only one remedy which, as he himself says, cannot be applied in all cases. I have received hundreds of letters from all over the United States; I have visited the colleges, and their officers have told me that they were trying the treatment I recommended. They have asked me to see the patients, and when I asked for the remedies and instruments, to show how to manipulate the one and to use the others, they did not have them. How can a gentleman expect to accomplish anything unless he himself will faithfully try and be honest? It is no criticism against a method or treatment if the criticiser himself does not practice or attempt to practice what is advocated.

Dr. Brown—There seems to be two grounds taken in this discussion; the one that Pyorrhœa can be cured, the other that it cannot. Now, let us take an intermediate ground. Who would think to condemn a physician, because, when he cured a sore throat, it recurs in a year, nor, if any one had cured Pyorrhœa Alveolaris, and the tendency or disease reappeared in three or four years. It may take generations of treatment to cure disease and eradicate it. The child says, "mother's teeth dropped out, and sister's did; I come to you fearing the disease." The question is not whether it can be cured permanently. Dr. Harlan is right; he has cured cases; so have I, and so have we all; but can one tell what the cases will be five years hence? Many will recur. Does a man allow his wooden house to burn down because it caught fire three or four times, while his neighbor's stone house never burned?

Dr. Shepard—From my observation I think the disease can be wiped out in the first generation. Taken in the incipient stages it is as curable as any disease; there will be no loss of the alveolar process. Patients should bring their children to us in early life; the tendencies, as Dr. Pierce said, are hereditary. We need to watch them. The term Pyorrhœa, meaning originally pus-flow, is used to mean the loss of tissue and the ensuing inflammation. The section of nomenclature has not been active in the proper direction.

Dr. Atkinson—We have heard a great deal of good sense and of nonsense; some have classified diseases in the plural before they have defined them in the singular, and they have got so tangled in perception that we have had a hodge-podge of brilliant percep-

tions so intermingled as to be made worthless. Let us get our minds to the point of what a disease is, and how it acts, and whether it is capable of being limited or annihilated. There is such a thing as antidoting of diseased activity, which is the result of the introduction of foreign elements into the functioning body. Every phlegmonous abscess is self-limiting and self-curing. It will go in the direction of the least resistance. If the flow of pabulum by pressure is prevented, it will abort. Why does not Pyorrhœa Alveolaris heal? It is the introduction of micro-organisms which float in the air that set up a ferment adverse to the formation of tissues, so that they can be built after the type of the tissue. I cured a case of twenty-four years' standing in eight days. I then used wood creosote. What is recurrence? It is either repetition of imbecility on the part of the investigator, or malevolence by persisting in a wrong position. These cases of which we speak as recurrences are simply territories, only enclosed a little, but not healed, in which the bacteria had sufficient oxygen to keep them alive, and they broke down the tissue, until it made its way by the recuperative law and broke through on to the surface; or it took another way of curing, which is encystment, whereby the foreign body becomes a mineral in its function, like a bullet in the body, remaining encysted for years. I have in my own person a splinter of wood that has become resorbed so much that I can find it only occasionally. When you have removed the body inimical to the organization, that organization alone does the cure. Anything may be according to the organization a food, a poison, or a remedy. On motion the subject was passed.

(TO BE CONTINUED.)

NEW JERSEY STATE DENTAL SOCIETY.

FOURTEENTH ANNUAL MEETING AT ASBURY PARK, JULY
16, 17 AND 18, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER.

(Continued from page 584.)

Dr. James G. Palmer—Read a paper entitled "Higher Dental Attainments." (See page 621.)

Dr. R. Finley Hunt—I must, in the first place, congratulate the State of New Jersey, and the Dental Society of New Jersey, on the fact that they have a law now which embraces that feature which should be embodied in all laws in all the States, and that is that no person, after the date of the passage of the law, shall enter the profession unless he is in possession of a diploma from a reputable dental college. It has long been an idea of mine that when we send out our graduates from the colleges, we should send them out, not only able to perform the necessary operations in their profession, but so well educated in their previous life, as well as in the college, that they would reflect credit upon their alma mater, and do honor to the profession they have chosen. In order to do that it is necessary that all persons who enter a dental college should have a good, general education as a foundation on which to build their professional knowledge in the college and on which to build their reputation in after life. I have, together with a number of my friends in our section of the country, advocated this for a long time, and that there should be a preliminary examination of every person who comes to matriculate in a dental college. But in the condition of affairs in our country, with reference to dental schools, it has been impossible to carry out that idea without making too great a sacrifice, because if a dental school were to set the noble example of requiring a strict preliminary examination, it would cut itself off from a large number of students and the income derived from them, and that is a powerful motive in human nature. However, I think the time is coming, and will soon arrive, when the system of education in our dental schools will be uniform in every respect, uniform in matriculation, length of time in attendance, and in the standard of requirements. In connection with this question there is to be a meeting of the faculties of dental colleges in New York on the 4th of August, and of the National Board of Dental Examiners at Saratoga, on the 8th of August, and I look to see them act, both separately and in concert, in such a manner as to bring about a satisfactory adjustment of these disputed questions, and in such a manner as will inure to the interests of the profession in the direction of the higher dental attainments of which Dr. Palmer speaks.

Dr. W. H. Atkinson—I think it is very manifest that we need a higher education of dentists, but the continued reiteration of dental education has become tiresome to me. It is "dental education,"

"dental knowledge," dental this and dental that all the way through, when we don't mean anything of the sort. We mean the education of dentists. If a man has a good English education it is not useful to be continually repeating these phrases, and neglecting the weightier matters of the law, whereby we shall be able to understand the organs upon which we are mainly called to do our work, and thereby bring sorrow or joy to those who are in our hands. You know the enthusiastic hold I have taken upon one person here, (Dr. Heitzman) in his efforts to bring our knowledge to the foundation of our work through histology. Without histology we will never be thoroughly competent dentists. We may have a mass conception, but we will never have a clear discrimination between a healthful and a diseased manifestation of the functions pertaining to the teeth and their connections; if we are to get a higher education, let us take a new deal and ignore the old text-books.

Dr. M. W. Foster—This subject of dental education is one upon which I hold peculiar views, that may not coincide with those of some of the gentlemen present, but I am here for the purpose of stating those views and giving other gentlemen an opportunity to combat them. I did not have the pleasure of listening to the gentleman's paper, so that nothing I may say will be personal, or have reference to anything contained in the paper. It seems the height of folly and the merest nonsense to place such eminent gentlemen as I see before me, who have not had the opportunity of getting into a college in their early life, and whose full practice in their later professional life gave them no leisure for it, on the same footing as the boys who come in without the slightest knowledge of dentistry, and require them to study the same length of time before they are permitted to pass the examination. Does it not strike you as a peculiar thing that these eminent practitioners, men who are recognized as our professional brethren, should go to a dental college and stay two years' time, and for what? Is two years sufficient without an examination? Nobody makes that claim. Then what is it after all but the ability to pass a thorough examination that obtains the degree at last. The only question then seems to be as to the abuse of their trust on the part of college faculties, and the means of correcting such abuse is in the hands of your dental societies. Appoint a board of visitors of three or more, whose duty it shall be to attend the examinations of the colleges, and if those gentlemen feel that

the examination does not come up to the proper standard, and that the men are not sufficiently advanced to graduate, let them so state and enter their protest ; and let the colleges that will not receive and listen to your advisory committees bear the odium of graduating persons who are not fit to practice dentistry.

Dr. James G. Palmer—I did not refer to dental education in the colleges in any way ; It was not my purpose to do that. I believe that a proper education of young men should be required before they are allowed to enter our offices, and before they are allowed to take up the study of dentistry in any way. That is going down pretty near to the bottom of things, though perhaps not as far back as Dr. Atkinson might like to go. If a man has a thorough classical education he is far better prepared to follow any profession than he is if he lacks that. The man who passes four years in a classical college learns other important things that are not laid down in the curriculum ; he becomes imbued with a sort of brotherly feeling and love of his alma mater, and a sense of dignity that a man who spends only a one or two winters' course at a dental school can never have.

Dr. C. S. Stockton—The question how to start young men properly for dental work is a great problem. I remember a remark, very wisely made, by Dr. Buckingham, I think, that the colleges did very well with the material that was sent to them. I think that is true. If you should attend the opening session of a dental college and see many of the young men who go there, from their appearance you would judge that it was a pretty hard task to make much out of them in the way of dentistry. I have been very much interested in this subject for a few years past, and I know that this society has done very much to educate and elevate the profession. During the past year the society has taken a step in advance, and we are all proud that New Jersey stands to-day among the first in respect to dental laws. It should be remembered that it is *not* the function of a college to recognize merit wherever it meets with it. A college diploma is not a mere merit-mark. It is not proof of the possession of a definite amount of knowledge. It does not even demonstrate that its holder is a reputable practitioner. It is simply the evidence that he has pursued a prescribed course of study ; has gone through a duly enjoined curriculum. The idea that college authorities are the arbiters of the professional standing and actual

acquirements of all men, and that it is their province to set their seal upon those who have and those who have not gone through their specific course of study, seems to me very absurd.

Dr. J. Hayhurst—Believed there should be some change in the system of dental education, which had been going on in the same rut ever since he could remember almost, and he hoped the National Board of Dental Examiners would, at their approaching meeting, devise some new means of educating dentists; he believed that the old fashioned kind of lectures in dental colleges would be done away with; that the standard of requirement would be the same throughout the land, and that there would be no disposition on the part of one college to find fault with another when diplomas were granted.

Dr. Carl Heitzman—Expressed the opinion that the most important element in the education of a dentist was a thorough knowledge of the anatomy of the teeth and their surrounding tissues. It should be the aim of the dentist to know what he does, up to the last point, when he works upon these structures, and that can be done only upon the solid foundation which the histology of the teeth gives. To-day we know that there is not a single tissue that enters into the formation of the teeth that is not alive; we know that live tissues react upon injury done to them; therefore, a foreign substance in the form of a filling that is introduced into a tooth will necessarily cause more or less reaction, and a great deal of harm may be done by the introduction of unsuitable materials in an unscientific way. To avoid such harm and to accomplish the beneficial results that the dentist and his patient desire, a knowledge of the minute anatomy and histology of the teeth is absolutely necessary.

A resolution introduced by Dr. Stockton memorializing the Governor and civil authorities of the State of California in the matter of the imprisonment of Dr. Chalfant for the killing of Dr. Josiah Bacon, to the end that he be pardoned for that offence, was unanimously passed.

At the annual election of officers the following were chosen: President, Dr. J. W. Scarborough, of Lambertville; Vice President, Dr. W. Price Richards, of Orange; Secretary and State Prosecutor, Dr. Chas. A. Meeker, of Newark; Treasurer, Dr. Geo. C. Brown, of Elizabeth.

PENNSYLVANIA STATE DENTAL SOCIETY.

SIXTEENTH ANNUAL MEETING, HELD AT WILKESBARRE, JULY
29, 30 AND 31, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY W. H. TRUEMAN, D. D. S.

(Continued from page 572.)

Dr. Chas. J. Essig, of Philadelphia, read a paper upon "Dental Diagnosis." He remarked: Pain or discomfort in or around a tooth, while usually the first symptom of a deviation from the normal condition either of the pulp or the surrounding tissues, may be merely sympathetic, and the organ seemingly affected perfectly sound. The differential diagnosis of the cause of the trouble, therefore, often demands much care and intelligence. The causes of pain in and around the dental organs at present recognized are comparatively numerous, but are often so obscure as to baffle for a time all efforts to find their origin. Even in the apparently simple matter of differentiating between the pain of periostitis and the purely neuralgic pain of an exposed pulp, much difficulty may occasionally be experienced. This was illustrated in a recent case. The patient complained of great pain near an upper tooth on the right side, which she could not definitely locate. Placing her finger on the first molar she remarked: "It begins here and extends toward the temple." On examining the tooth in question I found it devitalized, and the cavities in it filled with gold after the most approved contour methods, as were several of the other teeth near to it. The work was beautifully done, and suggested that the roots had been properly treated. There were marks on the gum over the tooth indicating the previous existence of an abscess, but at the time of examination there was not the least tenderness on percussion, and no loosening or elongation. In response to questions the patient said that neither heat nor cold aggravated the pain, but the recumbent position made it much worse. The fact of this tooth being devitalized, the evidence of previous trouble, and the statement of the patient that the recumbent position made the face throb, induced me in the hurry of the moment to treat it as a case of incipient periostitis. She reported the next morning unrelieved.

I now made a more thorough examination, determined to find the cause of pain, and asked the following questions; the answers will suggest to you how little we can depend upon the patient's observations in many of these cases. My first question was: "Does the pain come on after eating? No, it may come on at any time. Does the presence of sugar or sweets cause it? No. The recumbent position aggravates it? Yes; I could not lie down at all last night. Are you sure cold does not cause it? Yes; I have just eaten water ice without discomfort." In order to test this, I took up a syringe and threw a jet of not very cold water equally upon the first molar and the second bicuspid. Instantly the patient suffered the most acute pain. Here then was the trouble. The second bicuspid contained a very large gold contour filling. The absence of redness, swelling, loosening, and elongation, indicated that the pain was confined to the pulp alone. The filling was removed and found to have been very securely anchored by a number of retaining pits, one of which penetrated to the pulp. A fine exploring instrument was passed into it, and on its removal a small amount of pus came out, followed by bleeding.

Even in simple cases, where the patient can definitely indicate the affected tooth, diagnostic care is still necessary to successful treatment, particularly where the previous history of the tooth is unknown.

We may also meet with complications of a much more puzzling character than those here described. Recently such a case presented. The mouth had received no attention for ten years. There was great pain in the left inferior second or third molar. It required no little care to arrive at the conclusion that the pulp in the wisdom tooth was slightly exposed and fully alive, and that the pulp in the second molar had long been dead, and that the violet-colored nodule which was easily seen projecting through an opening from the pulp chamber was gum tissue, and not the pulp. It may be remarked that the difference in sensation between the two might have settled the question, but so far as response to contact of the instrument went, the patient did not seem able to distinguish between them. It is needless to say that the hasty or careless use of arsenic at the time of the first examination might have been serious. Another case even more forcibly illustrates the difficulty of diagnosis. The patient suffered from severe pain, swelling and elonga-

tion of the left inferior first molar, and a small circumscribed abscess on the right superior canine. Neither of the teeth had ever been decayed, but both were affected by pyorrhœa alveolaris. Aware that small circumscribed abscesses often occur during the progress of that disease without the pulp being involved, and that the sinus or pocket which forms along the tooth may by its encroachment cause the death of the pulp, and the usual more diffused abscess, the important point to determine was, which condition had we to deal with, as the treatment would depend entirely on the condition found. According to the patient's account the molar had been sensitive to cold a long time, and had been so tender that it was practically useless. The canine had never given any trouble. I inferred that the pulp of the molar had died, and we had the usual form of alveolar abscess to deal with, and that the canine was merely affected by one of the peculiar circumscribed abscesses almost characteristic of pyorrhœa alveolaris. Application of ice-cold water confirmed the diagnosis. In the case of the molar an opening was made into the pulp chamber, and the abscess over the canine was opened and treated with chloride of zinc. The relief in each case was prompt and permanent.

It may be urged that the cases cited are somewhat unusual; let us grant at once that such is the case; I hold that it is in just such cases that difficulty, if not danger, is to be encountered, and therefore unusual cases demand extraordinary care.

Dr. William H. Trueman, of Philadelphia—Was very much interested in Dr. Essig's paper. We are constantly meeting with cases like those he had cited, cases where the diagnosis is alike very difficult and very important. The third case he mentioned was especially so; and how easy, how very easy in such a case to make a mistake without being at all careless, and under some circumstances such a mistake, as the doctor remarks, might be very serious. It seems very easy to distinguish a devitalized tooth from a vital one, and yet there are many instances in which he was unable to do so at the first examination; indeed in some cases, such as one that occurred some years ago with a tooth in his own mouth, it is almost impossible without actually opening into the tooth. The tooth referred to was repeatedly examined by several dentists of large experience, who were unable to decide as to its condition. About twelve years afterward it was opened into and found to be

dead ; probably had been so a long time, yet had never given any trouble, or shown the least sign of its true condition.

He was aware of the usual means of testing, and of the usual signs of death of the pulp ; but we occasionally meet with cases where all signs and tests leave us in doubt. If we drill into the pulp supposing it dead, and find it alive, we have done irreparable injury. He would very much like to know how we can absolutely diagnose whether the pulp is dead or alive in these cases.

Then, again, we meet with other cases of difficult diagnosis, none more so perhaps than those where bony granules, pulp-stones, they are sometimes termed, are found in the pulp chamber. They may, and often do, cause intense pain, without its being localized sufficiently to enable us to detect the tooth in fault. Indeed, there may be more than one tooth in the same condition. At one time the pain may settle in a certain tooth ; in a few hours it has passed from that and is felt in another, or the pain may be so diffused and general that the patient cannot locate it at all. He had such a case some time ago. It was only after repeated examinations that a lower molar gave a suspicion of tenderness on percussion ; the case then passed to another dentist, who found the same tooth very slightly sensitive, and drilled into and devitalized it. Granules of bone were found in the pulp. The tooth was treated and filled with every possible care, yet a year after the patient complained that it was so sore and painful during mastication that he seriously contemplated having it extracted. This is too often the history of such cases, before it is possible to locate the seat of injury ; the irritation has continued so long, or has been so severe, that we really have a neuralgic trouble very hard to subdue unless the tooth is extracted.

We may also refer to the trouble we have from nerve sympathy ; for instance, an exposed pulp in the lower jaw giving rise to pain in an upper tooth, etc., the tooth really in fault giving no sign. This was illustrated in a recent case ; severe pain in a lower first bicuspid, slightly decayed, was really due to an exposed pulp in the lower third molar of the same side. It was very hard to convince the patient that a tooth he had never felt, was not conscious of being at all sensitive, was probably responsible for the pain he suffered ; yet its removal gave immediate relief. We might multiply these cases. Then we may have an abscess appearing far distant

from the tooth causing it ; or periosteal irritation entirely due to mal-occlusion, where we would least look for it ; or dental trouble due entirely to nerve sympathy, the real irritation being far removed from the dental organs ; and many other unusual cases which your experience will suggest. True, they *are* unusual, some of them *very* unusual cases ; but as Dr. Essig well says, they are cases requiring extreme care to accurately diagnose, and cases in which accurate diagnosis is very important.

The question was raised whether it was possible to have an alveolar abscess on a tooth with a living pulp. Dr. Darby related a case of abscess where he had no doubt the pulp was alive. Dr. Gerhart also stated that he met with a case where two living teeth were abscessed. Dr. Green stated that in 1848 he met with a canine discharging freely, apparently abscessed, but afterwards found the pus came from the antrum of Highmore. He considered nodulary dentine the most difficult to diagnose of any condition we have to treat, and questioned whether it was not better in many cases to extract at once. It was so often associated with a neuralgic condition, that the chance of making the tooth permanently comfortable seemed very slight.

Dr. Darby—Related a case of a maiden lady of about forty-five years of age, who had consulted him, complaining of severe pain in the teeth. He had examined them several times and found nothing wrong. Five or six others had also examined the mouth with the same result. She had also consulted a number of physicians, and had been under their treatment without relief. The last time she was in his office he found that all the teeth had been extracted, but the pain still continued. In consultation with her physician they both agreed that the trouble was due to uterine irritation, perhaps aggravated by dyspepsia, from which she had long suffered.

Dr. Gerhart—Suggested that catarrh, which he considered an American disease, was in many difficult cases the real cause of trouble. The irritation associated with it at times, he had no doubt, through nerve sympathy, caused severe pain in and around the teeth.

Dr. C. S. Beck—Said, that in diagnosing obscure cases we must look beyond the point where pain is felt. We must consider the physical condition of the patient, the time of life, the condition of

life, and the social surroundings. Those who are reared in luxury, and indulge in high living, and make but little exertion, who really are not filling the part in life nature designed they should, we will generally find suffer more intensely from nerve troubles. It seems to be nature's way of evening things up.

Dr. Guilford—Called attention to a small electric light introduced, which seemed to be entirely practical for use in the mouth, and promised to be a valuable aid in minute examinations of the teeth. When held behind the teeth it seemed to make the parts transparent, and the condition of the pulp was very plainly shown. If alive it could not be seen; if congested a change of color would be noticed, while a dead pulp seemed quite opaque, and a filling extending into the root shows black. This is so plainly seen that the exact condition of the root can be known with certainty. He thought it would prove valuable also in detecting incipient decay on the approximal surfaces.

The subject was passed, and the session adjourned.

AMERICAN DENTAL SOCIETY OF EUROPE.

MEETING AT VEVEY, SWITZERLAND, AUG. 26, 27, AND 28, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY DR. W. ST. GEO. ELLIOTT, OF LONDON.

The twelfth annual meeting of this society was one of great pleasure and profit to its members, and has left behind it memories that will not soon fade away. Dr. W. D. Miller, of Berlin, the President of the society, occupied the chair, and Dr. F. Foerster, of the same city, was Secretary. After the fraternal greetings of compatriots in a foreign land were over, and the necessary preliminary business disposed of, the secretary proceeded to read a paper by Dr. C. M. Wright, formerly of Basel, Switzerland, now of Cincinnati, Ohio, entitled "Clinical Observations and Laboratory Experiments." (See page 613.)

Dr. Du Bouchet, of Paris—The paper is very flattering to us as a society, but I fear ranks us too highly.

Pres. Miller—Perhaps that is true, but it should be remembered

that Dr. Wright was always very enthusiastic over a society of which he was one of the founders.

Dr. Elliott, of London—As some of the subjects mentioned in the paper will of necessity come up in the consideration of other papers that are to be read, I suggest that the discussion be postponed until all can be debated together.

Pres. Dr. Miller—It is our pleasure, gentlemen, to have a well known investigator from the other side with us to-day, and as he has some decided opinions regarding Riggs' disease, so-called, I will ask him to give us his views.

Dr. Bodecker, of New York—I am glad to meet with the American Dental Society of Europe, but I do not know that I have anything to say that is new or of special value. My views have been fully detailed in the reports of the Odontological Society of New York, but they have not always been correctly reported. I will give a short review of my opinions and experiences. The essential feature of Riggs' disease, or more properly *Pyorrhœa Alveolaris*, consists of pus flowing from the sockets about the teeth, such pockets often being the result of tartar, or arising from a lack of thorough cleansing on the part of the patient. The disease is found at all ages, but more frequently late in life; I have, however, seen it in a child of eight years of age, the teeth being elongated—one or two nearly one-fourth of an inch. The most common cause, particularly late in life, is tartar. Systemic causes are by no means absent, certain temperaments being more liable than others. Hereditary transmission may also be a factor of some moment in the case. As time will not permit me to consider the question of sources fully, I will confine my remarks to the disease as we ordinarily see it when induced by tartar or a lack of care or cleanliness.

1st. Remove all the pieces of tartar that are fairly accessible without too seriously wounding the gum. Some good operators, like Dr. Abbott, claim that they meet with the most success when strictly following the lines marked out by Riggs, but I think this an improper apprehension of the conditions found in this disease. If an operator were to remove all the tartar in the first stage of the disease, where there are loose gums, pockets and pus, it may be all that is necessary, but the probabilities are that these pockets will again become filled with *débris*, etc., and the disease make further progress. What should then be done? I would, as stated before,

gently remove all foreign matter, wash out the pockets with a solution of corrosive sublimate, 1 part to 1000 of water, and if I suspected necrotic tissue under the gums I would use a saturated solution of sulphate of zinc, or a saturated solution of iodide of potash, with crystals of iodine added, applying the remedies with a stiff nerve plugger wound with cotton, carrying it up under the gums. Necrotic tissue shows itself by a dark blue line along the margins of the gums. On the following day, if the color is still present, renew the application; it generally disappears after two or three applications. Then I would apply the bi-tartrate of chinoline, which is an antiseptic and astringent, but not an irritant; one part to forty-five of water I find to be about the right strength; repeat the application until the gums look healthy. After an interval of several days again apply as before. The cure is generally complete in three or four weeks. I have had some very bad cases, the teeth so loose that they could be readily removed by the finger. Extreme cases of this kind require great care, not only on the part of the dentist but also on that of the patient, for the teeth must be thoroughly cleaned after every meal. To assist in this I prescribe some antiseptic wash. At each visit I remove more and more of the tartar, then support the loose teeth either by a silk ligature, or what is better, a fine gold wire. I think it was Dr. Clark, of New York, who recommended the use of a support of oxy-phosphate of zinc; this may be done, or a small plate made after taking an impression in plaster, the loose teeth having been tied together previously. It is important that this plate should not rest upon nor impinge upon the gums, as perfect cleanliness could not then exist. I give the patient a syringe and a solution of peroxide of hydrogen, directing that the pockets about the gums be well washed with the medication. Of course we must not expect success in every case, but I find that where the treatment indicated is carried out, seventy per cent. of the cases will be cured.

Dr. Du Bouchet—I have sometimes used a small supporting plate in the cases spoken of by Dr. Bodecker, and with benefit; the plate resting on the gums.

Dr. Bodecker—Then you cannot have cleanliness, for tartar will gather under the plate, and thus irritate the gums.

Dr. Du Bouchet—The object is partly to get the tartar deposited on the plate, and thus save the gums.

Dr. Bodecker—It is much better not to have the plate touch the gums at all; the patient should come once in a while to have the plate removed and thoroughly cleaned.

Dr. De Trey—I have used these supports for loose teeth for about ten years. After thoroughly removing tartar I take a long piece of fine gold wire, made of pure gold, and commencing at one of the back teeth I weave it backward and forward, in and out where there is room, twisting it where it passes between the teeth around to the other side, thus firmly supporting all the teeth embraced, and yet not interfering with cleanliness.

Dr. Bodecker—That is about the way I do it.

Dr. Terry, of Zurich—When you find the teeth elongated can you reduce them?

Dr. Bodecker—Yes, if I can get any antagonism; otherwise I have no hope of their remaining in their proper position.

Dr. Sachs, of Breslau—That is my experience.

Dr. Gregory, of Lyons—Do you remove all superfluous liquid when you are treating the gums?

Dr. Bodecker—Yes, with bibulous paper.

Dr. Williams, of Geneva—Is dryness necessary?

Dr. Bodecker—Certainly.

Dr. Sachs—When the disease is somewhat dependent upon mal-articulation I have found it hopeless to medicate.

Dr. Bodecker—I do not give up any case when the pulp is alive.

Dr. Sachs—How do you know when the pulp is dead?

Dr. Bodecker—By the color, stomatoscope, electric light, etc. You may allow a molar to remain even if one root is detached by the disease.

Dr. Sachs—The Countess of — had formerly been under Dr. Miller's care; her teeth were elongated, with inflamed gums, bad breath, etc. The case was relieved, but the disease recurred.

Dr. Miller—The case reported by Dr. Sachs is a very peculiar one. The patient had never been troubled in any way with her teeth till one day when she bit in two a piece of green yarn. She at once experienced a very disagreeable taste, followed in a very few hours by severe pain of the incisor teeth above and below, and an inflammation of the gums which confined her to bed for nearly two weeks. As the inflammation subsided, suppurating pockets were formed on the right central incisors above and below. Whether the disease was caused by some poison in the yarn I am unable to say.

Dr. Chamberlain, of Rome—I would like to ask *Dr. De Trey* how long he would use gold ligatures on loose teeth.

Dr. De Trey—If the case is bad I keep the string on always. My father-in-law is an example. I fastened his teeth that way three times. Once one tooth came off; I cut a groove around it and tied it in with the others, and he has kept it for ten years, thus doing without artificial teeth.

Dr. Du Bouchet—This subject is a most interesting one; we must learn from each other. I have used instruments and adopted the radical treatment, but only with partial success. I syringe out the pocket with oxygenated water, using a probe-pointed syringe to push away the gums in advance of the liquid. I then apply iodide of zinc in limited quantity, as I found in one case extensive inflammation resulting from its too liberal employment; then I use a weak solution of carbolic acid (five per cent), direct the patient to use a soft brush, and to return every day. We must persevere in such cases; the disease will return if we do not persist. I have had some severe cases; in one, the lower canine and incisor teeth were badly affected. I could not get at the pockets, they were so deep. You may remember that at the meeting of the society held two years ago at Ostend, I exhibited an electric cautery; this apparatus I have found very useful. In this case I cauterize the gum from the free margin down to the pocket. The wound healed with astonishing rapidity. I desire to ask *Dr. Bodecker* if he has had any experience with this instrument.

Dr. Bodecker—No. I omitted to mention that in some cases there is partial necrosis of alveolus. Do what you will in the ordinary way and you meet with no success; it is then necessary to use a Riggs scaler, going deeply down and removing the offending part. Only in these isolated cases have I found heroic treatment necessary.

Dr. Edwards—I have used chloride of zinc in this disease, alternating with aromatic sulphuric acid; but in the ligation of loose teeth my experience has been unfortunate, as I find that I am likely to pull the teeth out. Acute cases are easily treated; it is not so with the chronic. In acute forms of the disease I use boracic acid and a weak solution of chloride of zinc. I would like to ask *Dr. Du Bouchet* whether he still continues to think well of sulphate of copper.

Dr. Du Bouchet—I do not use it as much as formerly.

Dr. Edwards—I prefer wood, with a bit of cotton wrapped around it, as a vehicle to make the application to the gums.

Dr. Bodecker—I have also found boro-glycerole useful, but do not advise too large a pharmacopœia. If we give the gums the necessary conditions they will recover. A wound on the hand will not heal if it is flooded with saliva and other secretions; so when you give nature a chance with the gums she will do her duty.

Dr. Edwards—I have found the tincture of sumach a good astringent in the after treatment.

The meeting then adjourned.

(TO BE CONTINUED.)

Editorial.

AN EDITOR'S SPECIAL.

Perhaps we are not as thankful as we should be for the grandfatherly care that some of our good journalistic friends manifest a desire to exercise over us, but as we do not feel that the responsibility for the carefully cultivated eccentricities of language, or the persistent thrusting forward of the great "I" by the respected editor of the *Ohio Dental Journal* rests upon our shoulders, we cannot see why he should be so troubled about our shortcomings. It is true, perhaps, that the editor of this Journal "has scarcely begun his career" (though we have been "careering" for more years than we like to reckon up), but we will try and find some consolation in the reflection that a possible immaturity is a more hopeful condition than a positive dotage. There is certainly abundant opportunity, and we trust there is in us an honest desire, for improvement. To this end we gladly accept reproof and correction from any one who can demonstrate his title as Master. But the chemist who teaches that dental caries is due to mineral acids, the physiologist who insists that he has caused a dog to breathe pure nitrous oxide gas exclusively for an hour without deleterious effects, the histologist who warns dentists to exercise caution in the extraction of deciduous teeth because there is danger of pulling out

the germ of the permanent one that may be adherent to it, does not seem to one just entering upon his "career" quite a safe guide to follow. Age grants privileges but not license, and though it may bring experience it does not always endow with wisdom. If we are to conform ourselves to some type we wish a perfect one, and—considering the circumstances our very much respected friend will pardon us if we are becoming a little restive under his repeated corrections and continued discipline.

A GROSS MISAPPREHENSION.

Dr. Catching of the *Southern Dental Journal* seems to have quite the advantage of Brother Barrett, of the *INDEPENDENT PRACTITIONER*, on the subject of veracity. We don't mean to say that any one has intentionally lied; but brother B. will undoubtedly be very cautious hereafter in charging anything of the kind (*what kind?*) on Dr. Catching, and if he does (*does what?*), and the documents are sent to him to disprove the misstatement, we think Dr. B. will prefer acknowledging his mistake rather than to have the proof in detail published by a rival journal.—*Items of Interest*.

This beautiful specimen of hashed English is what comes from comprehending with one's elbows. There is no question of veracity whatever between Dr. Catching and "Brother Barrett," nor is there, so far as the latter knows, any misunderstanding between them. Prof. Abbott asserted that he never signed his name, nor authorized it to be signed, to a certain announcement. The correspondence published conclusively proves that he was undeniably right. If the editor of *Items of Interest* cannot or will not see that there is a vast difference between approving a proposed object in a private letter, and publicly committing one's self to a definite time, place, and plan for its accomplishment, it must be due to a phenomenal mental obtuseness, or—to something worse. The *INDEPENDENT PRACTITIONER* does not publish private letters without the consent of their writers. That consent was, in this case, for good and valid reasons, no doubt, refused, and the editorial pages were offered to Dr. Catching for the purpose of making any explanation, not incompatible with the truth, that should be satisfactory to him. This he declined, and as we could not print the private correspondence of gentlemen without due authorization, the matter was left for him to dispose of as he thought proper,

and had not the misstatements of the editor of *Items of Interest* made it evident that at least one person had mentally fumbled the whole affair, it would not again have been alluded to by us.

DECEASED.

The New England Journal of Dentistry is no more. Its editors and publishers, probably feeling that there is small encouragement to labor for others, propose to look after their personal interests for a time. For nearly three years they have wrought faithfully for their profession, and, it is needless to say, without other reward than that which a satisfied conscience bestows. The Journal has done some excellent work. But it has been pecked at by daws, hawked at by mousing owls, and the self-sacrificing and disinterested labors of its editors have been mocked where they should have received highest honor. Perhaps the Journal has not always delved with discretion, and it may have wrought hard to establish a fallacy; but its work has been unselfish, and prompted by noble motives. It may at times have offended some, but what positive man or journal, worthy the attention of any earnest and conscientious laborer, has not done so? Who values the victories of My Uncle Toby in the back garden? It is he who gives as well as receives sturdy blows, that is worthy of honor. Another independent dental journal has succumbed. Disinterested pens are dried, and self-denying labors have ceased. There is rest for weary brains, but — is it well for the profession?

THE MISSING NUMBER.

We will pay cash for copies of the *INDEPENDENT PRACTITIONER* for January, 1884. There must be many in existence whose owners do not particularly desire to preserve them. If they are sent to us with a memorandum of the name and post-office address of the sender, we will gladly pay their full price.

THE AUTHOR.

The article in the last number of this Journal, entitled "A Visit to the Dentist," was published anonymously because the name of its author was not appended in the manuscript. It should have been credited to Dr. C. S. Stockton, of Newark, New Jersey.

OUR BOOK TABLE.

MANUAL AND DENTAL DIRECTORY OF THE UNITED STATES. M. P. BEECHER, EDITOR AND COMPILER. Beecher & Co., Publishers, New York, 1884.

This is quite a pretentious book of 163 pages. The first part or "Manual" contains many statistics of dentistry derived from various sources (some of them apparently from Caulk's Manual), extracts from valuable papers and from dental journals, "hints" and "facts" that are not always facts. There are some valuable "recipes" and some that will sorely test the patience of the dentist who attempts to make use of them.

The second part professes to present a complete directory of the dentists of the United States. This, if reliable, would be of great value to almost every practicing dentist, while to many it would make the book absolutely essential. But if the lists be incorrect, the book is worthless, for it will only mislead where precision is necessary. We cannot speak concerning all the lists, but if they are no more reliable than those with which we are acquainted, but little dependence can be placed upon them. We find the names of those long dead, and of those who never were dentists, while the names of many who are in reputable practice are entirely omitted. There seems to have been a desire to present a long list, with little care to make it a correct one.

VISIONS OF FANCY. *A Poetical work*, by N. M. BASKETT, M. D., Moberly, Mo. St. Louis: J. H. Chambers & Co., 1884.

This is not a poetical work, but a volume of fugitive and disconnected poems, none of which are of a sustained character. Some of them give evidence of considerable poetic feeling, but the greater part, while correct in rhythm and possessed of a jingling rhyme, are commonplace. To those who have a personal acquaintance with the writer the book may be of interest, but the casual reader will scarcely become very much absorbed in it.

THE PHYSICIAN'S VISITING LIST FOR 1885. P. Blakiston, Son & Co., Philadelphia.

This is the thirty-fourth year of publication of this capital manual. In addition to the visiting list for the year, it contains a vast amount of information within a small compass, that is essential

to every physician. There are posological tables, and tables of weights and measures, poisons and their antidotes, equivalents, and many other things, for which the reader is referred to the book itself.

TRANSACTIONS OF THE ILLINOIS STATE DENTAL SOCIETY, 1884.

We are indebted to the Secretary, Dr. J. W. Wassall, of Chicago, for a copy of this book. The Illinois State Dental Society is one of the very best in existence. The papers read before it are almost invariably of permanent value, and the discussions are what might be expected when one knows of what a class of men the Society is composed. The volume for 1884 is quite equal to that of most previous years, and we could not well say more in its praise.

TRANSACTIONS OF THE DENTAL SOCIETY OF THE STATE OF NEW YORK.

The transactions of the Society have usually been so long delayed in their publication that all interest in them has been lost before their reception. Much credit is due the Secretary, Dr. J. Edward Line, that a new departure has been taken and the volume issued promptly. Some of the papers this year are of great value, but the discussions are not as full as they should have been. The volume makes a creditable appearance, as a whole.

We have also received the following pamphlets and catalogues, of which space forbids anything more than mention :

Microscopical Studies upon the Absorption of the Roots of Temporary Teeth. By Frank Abbott, M. D. Reprinted from the INDEPENDENT PRACTITIONER of July, 1884.

Development of Enamel, similar to other Epidermoid Structures. By M. H. Cryer, M. D., D. D. S. Reprint from *The Dental Practitioner*.

The Origin of Defective Enamel. By Prof. W. H. Fames, D. D. S., with opening discussion, by L. C. Ingersoll, D. D. S. Reprinted from the Transactions of the Illinois State Dental Society, 1884.

Calcification and Decalcification of the Teeth. By C. N. Pierce, D. D. S. Reprinted from the *Dental Cosmos* of August, 1884.

Essay on Dental Education. Read before the Southern Dental Association, 1884. By Prof. R. B. Winder.

Memoir on the Nature of Diphtheria. By Drs. H. C. Wood and H. F. Formad. Appendix to a report of the National Board of Health for 1882.

Proceedings of the Third Semi-Annual Meeting of the Kentucky State Sanitary Council, 1884.

Fourth Annual Announcement of the Kansas City Dental College.

Sixth Annual Announcement of the Indiana Dental College.

Sixth Annual Announcement of the Dental Department of Vanderbilt University.

Current News and Opinion.

NEW LOCAL ANÆSTHETIC.

At the Ophthalmological Congress held at Heidelberg, during the month of September, a new and most extraordinary local anæsthetic was exhibited—the Muriate of Cocaine. A two per cent solution of this dropped in the eye rendered all the exquisitely sensitive tissues of that organ entirely insensible, so that any operation could be painlessly performed, and a probe could be rubbed over the cornea without causing any unpleasant sensation whatever. The solution caused no irritation, and no subsequent unpleasant symptoms. It is possible that but one side of the story has been revealed, but if the half of what is claimed for the drug is true, it would seem as if it might have a future in dental, as well as ophthalmological practice.

MOUTH MIRRORS.

Our esteemed friend, Dr. Maynard, of Washington, D. C., has made an improvement in mouth mirrors by substituting pebbles for glass. The doctor finds them superior to the ordinary glass mirrors, as they more clearly reflect the objects they picture. Such mirrors are not in market, but we hope that some of our enterprising manufacturers of dental appliances will get out a supply. As mouth mirrors are indispensable to the dentist, it is important that they be made as nearly perfect as possible. C. E. F.

ASKINGS AND ANSWERS.

The press of other matter is so great this month, that our question department is entirely crowded out. There are a number of important queries yet unanswered. No. 26 writes a second letter regarding his "trouble," and desires an answer.

"Dentist" (No. 20) also makes a second appeal for information, and desires the opinion of Dr. N. W. Kingsley.

PLEASE REMIT.

Many of our subscribers have promptly responded to bills recently sent, for which they will please accept thanks.

A few, however, have neglected to remit, and our treasurer would be glad to hear from them.

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OBITUARY.

DIED—in New York, Sept. 27, 1884, Oliver A. Jarvis, M. D. S.

Dr. Jarvis was born at Islip, Long Island, Aug. 21, 1827. With his father's family he subsequently moved to Ohio. He was a student of Geauga Seminary, and a classmate of the late President Garfield. When twenty-one years of age he went to New York City to study dentistry with Dr. I. Jarvis, his elder brother.

Dr. Jarvis commenced his professional career at a period when opportunities for acquiring a knowledge of a dentist's duties were exceedingly limited, but with a persevering spirit, and by determined effort to properly fit himself for the duties of his calling, he won an honorable position among his fellows. He was decidedly earnest in expressing his views, and was considered one of the prominent working members of the Societies with which he was connected. He was faithful in his endeavors to benefit those who sought his services, and ready to impart to his professional brethren whatever he believed would benefit them. He was prompt to denounce whatever he considered unjust and erroneous, but seemed ever actuated by friendly feelings and generous impulses.

C. E. F.

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To the Dental Profession.

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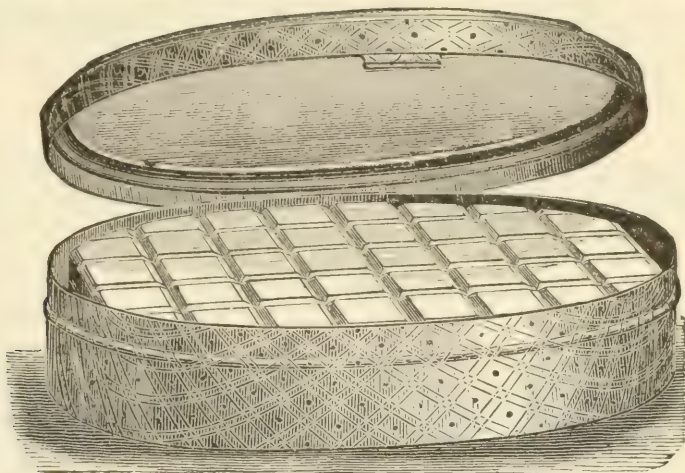
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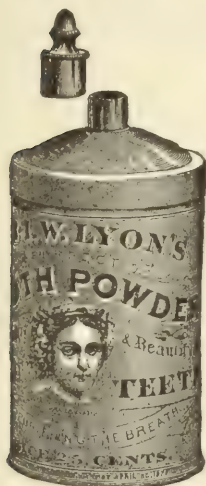


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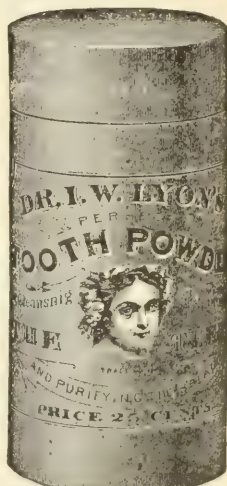


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THE
Independent Practitioner.

VOL. V.

DECEMBER, 1884.

No. 12.

Original Communications.

PROFESSIONAL SERVICES AND PROFESSIONAL FEES.

BY EDWIN T. DARBY, M. D., D. D. S.

READ BEFORE THE CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW
JERSEY.

Mr. President and Gentlemen:

I appear before you this evening to fulfill a promise made the worthy chairman of your executive committee some months ago. But in doing so I have been beset by one of the greatest difficulties which it is the lot of an essayist to encounter, namely; the selection of a subject. I have spent more anxious thought in the effort to decide upon a theme appropriate to this occasion than would have prepared a better paper than the one to which I now invite your attention.

The subject which I have chosen is peculiar, in that it has seldom been discussed by our societies, but it cannot fail to be of some little interest, because it relates to the chief object of our toil. As a sentiment it sounds well to say that we work for the good of the public. As a fact, we work for the good of ourselves, and those dependent upon us.

Professional services, like articles of merchandise, have a value which is usually relative, but is, nevertheless, determined by the law of demand and supply. Most articles which are bought and

sold are subject to this law. Scarcity of anything merchantable enhances its value. Diamonds are valuable because they are rare. If it were possible to crystallize the coal beds of Lamokin, and Scranton, and New Castle, diamonds would sell for six dollars per ton instead of two hundred per carat.

Fine works of art are valuable because they are rare. If the paintings of Michael Angelo, and Raphael, and Murillo, and West, and Turner were as common as the cartoons of *Puck*, they would be as valueless.

Fine tapestries, and laces, and cloths, and bronzes, and watches, and mechanical appliances are valuable because they are the product of skilled labor, and skilled labor is rare and commands high wages; while the former may be absolute the latter is usually relative. The value of all articles of merchandise is determined by the law of supply and demand. It is the quantity of an article produced, and the demand for such an article, which make it valuable or otherwise. The same law will in a measure apply to professional services.

Professional services, like articles of merchandise, have a value which is either absolute or relative, and is determined by the quality, demand, and supply.

The same law applies with equal force to all commodities. When there is a dearth in the wheat or corn crop, the price is high. When there is an excess over the demand needed for consumption, the price is correspondingly low. The demand and supply regulates the price, and the price is usually the value. Ordinarily speaking, a thing is worth all that it will bring, but there are fancy or fictitious values in contradistinction to real or intrinsic. It is hardly reasonable to suppose that a horse is worth \$40,000, or a dog \$5,000, or a cow \$2,500; but cows, and dogs, and horses have been sold at these prices, and the inference is that they are worth it.

Society demands some standard of valuation, and when applied to the commodities of life it is regulated by the law above referred to.

The services of professional men do not, strictly speaking, come under this head, for every man is, in a certain sense, a law unto himself. It is true that some professions have their scale of prices, or fee bills, as they are termed. The lawyer has a certain fee for drafting wills, and deeds, and mortgages, and replevins, and

judgments, but these are formulated writings which can be deputized to another; hence a fixed price is usually charged for such writings. When the question is one of opinion, the fee is variable, and may be high or low, just in proportion as his services are much or little sought after. Strictly speaking, a lawyer's fee is what he charges for his individual services; the value of his opinion, the price of his retention in a case. His retaining fee may be \$5 or \$50,000, and is determined by the importance of the case, the labor required, and in some instances by the fatness of his client's pocket-book. Physicians have a fee-bill, or scale of prices, but they seldom adhere to it, and with most practitioners it is a dead letter. It stipulates what shall be the minimum charge for an office or residence visit, but does not say what the maximum charge shall be. The public have just about as correct an idea of its meaning as they have of a gas meter after reading the directions on a gas bill.

As a rule, physicians are underpaid. No class of professional men do more work gratuitously than does the conscientious practitioner of medicine. He is at the beck and call of the poor and lowly, and in the earlier days of his professional career receives more "God bless yous" than substantial fees. It is only when he becomes celebrated that he begins to reap what he has sown during the years of his obscurity. One of the most celebrated physicians of Philadelphia once told me that when he began the practice of his profession in that city his fee for a visit was twenty-five cents, and he was thankful if he collected that.

The men whose names are historic in medicine, and those who are now celebrated, have risen from obscurity, and have received small fees in the beginning. To the beginner a small fee is better than no fee at all; a half loaf better than none; and the practitioner who has worthy aims is better content to attend the poor for insignificant fees than to sit in his office and wait for the calls of the rich. The medical man who did most for small fees at the beginning is generally he who has done most for large fees in after life. A century ago a young man of obscurity graduated from the University of Edinburgh, and at once settled in the city of London. He paid six shillings and six pence for his room rent, and received from his practice the first year five pounds (£5); but in after years when swaying the surgical scepter of England, as Sir Astley Cooper, his practice in a single year amounted to £23,000.

If statistics are reliable the American public receive their medical attention at a very small cost *per capita*. Recent calculations have shown that in the city of Philadelphia, where there are, perhaps, a greater number of physicians in proportion to the population than in any city in America, the average annual income of physicians from their practice is less than \$1,200.

The quality of professional service determines its value. It sometimes happens that the public obtain the services of skillful men for less than they are worth, but, on the other hand, they often pay exorbitant fees for ignorance or malpractice. There is, perhaps, nothing for which money is paid that is so uncertain in its value as professional service, nor is there any subject upon which the public show a greater amount of ignorance than in the matter of professional skill. No better illustration of faith could be found than is daily witnessed by the medical man. The public opens its great mouth to skillful and unskillful alike, and allows the quack and charlatan to pour, as Voltaire has said, "drugs of which they know little into stomachs of which they know less." Society, like a wagon wheel, runs in ruts. It not infrequently happens that men of mediocre attainments have become celebrated and affluent, because the tide set in their direction. People patronize a man because the *elite* of the village or city do so, and often pay exorbitant fees for services which are of themselves valueless. It is sometimes more profitable to become fashionable than to become skillful. Who of us cannot recall men whose offices are thronged with admiring patients, joyously paying large fees for inferior services, while his professional neighbor, conscious of superior skill, languishes in poverty and obscurity.

Few people are able to judge of the value of anything outside of their own specialty. Nine-tenths of those who purchase judge of the value by the price asked. They reason that a thing must be good if it be high in price. They apply the same rule to professional services that they would in the selection of an India shawl. It is not the ignorant and superstitious alone who thus estimate values. Some years ago an intelligent physician called upon me to ask the quality of some operations performed for him by a dentist in a little village where he was spending his summer vacation. He employed him because he had leisure, and *presumed* he was skillful. He had no reason to doubt the quality of the service rendered until

he paid the bill. The price charged was one dollar per cavity for gold fillings, many of them large. The operations were beautiful; had he paid five or ten dollars each instead of one, he would have been sure the work was good. I recall another case, the reverse of this, but which illustrates the argument. A gentleman about going abroad, to be absent a number of years, asked me to whom he should apply in case he needed services while there. I gave him the names of several whom I believed good men and true. When he returned, some years after, he told me that he had been in the hands of one of the gentlemen, and had five gold fillings inserted, for which he paid the modest sum of \$400. He did not question the quality of the work, but thought it just a little dear in price. It is one of the characteristics of humanity that it appreciates most that which costs most, whether it be of money, of labor, or of sacrifice. It has often been said that the professional man has ample opportunities for deception and fraud, and the saying is undoubtedly true. He has it in his power to palm off ignorance for knowledge, poor work for honest service, and may extort from his patient extravagant fees, while another would be satisfied with reasonable ones.

There is, perhaps, no calling in life where innate honesty is more essential than in the practice of dentistry. The dentist can conceal his mistakes and blunders almost as well as the physician; if he be shrewd as well as dishonest, he can deceive his confiding patients at every turn, and it may be months or years before they are aware of it.

During the last quarter of a century great changes have been made in the methods and value of service in our specialty. The introduction of cheap bases for artificial teeth, and the increase of more than eight thousand practitioners of dentistry, have had a tendency to lower the standard of excellence, and to materially affect the price of dental operations. I am not prepared to say that the introduction of rubber, celluloid, and other cheap bases has been a curse to the public, but I am strongly of the opinion that thousands of valuable natural teeth are annually sacrificed, and their place supplied by miserable plates at miserable prices. So great has become the competition in the country, and even in some of our city offices, that whole dentures are furnished at the small sum of ten dollars.

I met a gentleman, a few weeks ago, in the interior of New York State, whom I had known twenty years ago as a reputable practitioner. He said that so great had become the competition in his own vicinity that he was now making whole upper and lower sets of teeth for ten dollars, and others were doing it for less. Gold fillings were inserted for one dollar, and amalgam and other plastics for fifty cents. The demand was for cheap work, and there were more than enough dentists to supply the demand at those low rates. So little skill is required in the construction of these cheap bases that in the past the blacksmith has forsaken his anvil, and the joiner his plane, and with forceps, impression cups, and vulcanizer, he has itinerated the country, supplying the demands of the people.

In mercantile pursuits competition is said to be the life of trade, but its twin sister, over-production, has been the death of many. When the supply exceeds the demand, prices are low, and often ruinously so. Our country is at the present time experiencing the baneful results of over-production. Factories and mills are being closed, and coal mines are being flooded, and the laborer and operative are suffering for employment. History has shown that whenever there has been depression or a panic in business, the professions have had a large influx. Our medical and dental schools have opened the present year with large classes, and will continue to do so until the depression ends.

Of late there seems to be a growing belief that the dental profession offers one of the most lucrative fields in which to labor, and it is sometimes amusing to know the estimate which people place upon our work and our pay. A business man, who had several sons approaching manhood, called upon me recently to ask my advice about one of them whom he thought of educating in dentistry. He said his son leaned toward dentistry, and as it seemed to be an easy life, with big pay, he himself believed that he could not do better than to start him in the "business." My reply to him was to the effect that if he expected his son to have an easy life with a fat purse, he had selected the wrong calling. The two conditions are incompatible. The men who have been successful in dentistry have had laborious lives, sacrificing health, recreation and enjoyment, and, as a rule, dying an untimely death.

The average dentist is poor; poverty sat by his cradle, was his

playmate and companion through life, and often follows him to his grave.

If we have fine homes and the comforts which others enjoy, it is because we are diligent in business, prudent in expenditures, and conscientious in our dealings with those who employ us. Notwithstanding we have trials and perplexities (and I sometimes think the dentist has more than others), it is encouraging to believe that the more intelligent of every community appreciate the laboriousness of our lives, and pay our fees cheerfully.

But there comes a period in the life of every dentist who has been successful in attracting a large clientele, when the matter of fees or charges for his services becomes one of the problems which he must solve. In the earlier years of his professional career, when patients are few and his reputation yet unmade, he is better content to accept small fees than to sit in idleness. His modesty in the matter of attainments, and his timidity lest he drive some away in consequence of his charges, prompt him to keep his fees below those of other men engaged in the same calling, and often below their actual value. But when in after years his services are sought by greater numbers, and his appointment book is filled for weeks or months ahead, he begins to feel that his experience has enhanced the value of his service, and he instinctively puts a higher moneyed estimate upon his skill. The tyro may perform a given operation as well as the man who has had twenty years of experience, but the beginner lacks the judgment which twenty years of experience will furnish him. Hence he lacks that which will enable him to decide when and how to perform a given operation. If your services and mine are worth more than the services of the newly-made graduate of one of our colleges, it is because we have had the experience of ten, twenty, or thirty years, and with it the accumulated skill which these years of experience must bring us. How, then, is the man of experience to regulate his charges? We have seen that competition in the country has lessened the standard of excellence, has reduced the price of professional service to that of mechanic's wages, has killed ambition, and has been the cause of the sacrifice of thousands of valuable teeth.

Professional men ought never to compete in anything save excellence.

The fee system of Europe has some features which commend it

to our American practice, but it has defects which it is to be hoped will prevent its adoption in this country.

The English fee is a guinea for consultation, extraction, and ordinary stoppings (fillings). For the minor operations it would seem to us an excessive charge, but the expectation is that the average will be made good in the more prolonged or difficult operations. Having a given fee for each sitting, whether it be long or short, the tendency is to make it as short as possible. It is not an unusual thing for a dentist in full practice in England to see from twenty-five to fifty patients in a day, receiving from each a guinea. An American dentist would not feel that he could do justice to half that number. Patients of mine, who have sojourned in England and been in the hands of English practitioners, complain at the aggregate cost of this system of charging. Assuming that English operative dentistry is equal to ours (which it is not), the cost to the patient would be greater than the charge of the average American dentist of ability for a similar amount of work.

The French and German-American dentists have a similar fee. The usual fee in France is a napoleon, or about four dollars American money. The German dentist proper has a mixed way of charging, but the German-American dentist has a minimum charge of fifteen marks, or about three dollars and seventy-five cents of our money, and often doubles it for a sitting of any considerable length.

It is to be presumed that in countries where amalgam and the plastics are more commonly used by the better dentists, this system would work better than with us, who use a larger percentage of gold for filling teeth. Perhaps the most just way of fixing one's charges is by the hour, or the time system, and the testimony of those who have tried it for years is to the effect that it is more satisfactory to the majority of patients. In cities, and among practitioners who confine themselves exclusively, or nearly so, to operations upon the natural teeth, it has much to commend it. It insures to the dentist pay for his time, and time is his stock in trade. It insures to the patient painstaking work, because the operator has no selfish motive to hurry. It prevents misunderstanding in the matter of accounts, for the patient can keep his own reckoning. It is more professional, for it is a charge for time and service, and not for material. It inculcates the adage that

time is money, and so prevents loitering and needless conversation. But you tell me that the dilemma is unchanged, and how is the dentist to estimate the value of his services per hour? One man is slow in his movements and gentle in his touch; another is as quick as lightning and accomplishes much more in a given time; hence his services are cheaper to the patient if the price per hour be the same. I am free to admit that there is force in the objection, but the price per hour need not be the same. Every man has a pretty correct idea of the value of his time. He knows, or should know, what income he should receive for a year's service. Let us occupy a moment in details. Of the three hundred and sixty-five days in a year, fifty-two are, by custom, set apart as days of rest, leaving three hundred and twelve days, exclusive of holidays. But no dentists should, and few can, pursue their calling without periods of recreation. A month is too little, but it is better than nothing. Let us subtract, then, forty days for pleasure, leaving two hundred and seventy-two working days. The average dentist, in full practice, stands at his chair seven hours per day (if he does more he dies earlier), making a total of nineteen hundred and four hours. From this a liberal reduction must be made for unavoidable delays and unaccomplished purposes, reducing the number of paying hours in a year to about eighteen hundred and fifty, which at five dollars per hour would amount to \$9,250; or at ten dollars per hour to \$18,500. These fees may seem high to some, or low and reasonable to others. They are about the average prices charged by dentists, whether it be by operation or by time, and are as low as the public can expect from professional men who devote their lives to the task of saving teeth. Few men engaged in our calling have amassed a fortune, or even a competence; but if the facts were known, it would be seen that the men who have been uniform in their charges and methodical in calculating the value of each moment and hour are those who have accumulated most and served the public best.

LEGAL DECISIONS.

A dentist in San Francisco, who forcibly removed some fillings the payment for which was in dispute, was condemned by the courts to pay damages in the sum of \$217.50. It has also been decided that a dentist cannot retain an unpaid-for set of teeth that may come into his hands again for alterations or repairs.

PERSONAL RECOLLECTIONS OF A DENTIST OF THE
EARLY DAYS.

BY DR. L. W. BRISTOL, LOCKPORT, N. Y.

READ BEFORE A UNION MEETING OF THE SEVENTH AND EIGHTH DISTRICT
DENTAL SOCIETIES OF THE STATE OF NEW YORK, HELD IN ROCHESTER,
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The practitioners and students of dentistry of the present day know little of the difficulties and disadvantages under which those practicing fifty years ago labored. There were no dental colleges, no dental depots, no dental instrument makers, and in the country no regularly settled dentists. They traveled about with their "kit" under their arm.

The teeth used in those days were human teeth, procured from the battlefields or hospitals, preserved in jars with spirits of camphor. They used to say of a prosperous dentist: "Why, he is rich; he has a whole keg of teeth." They also used the teeth of neat cattle, or carved them out of a block of hippopotamus ivory, leaving the enamel in front, like the sample I will show you.

Dental laboratories were sealed sanctums, within which no other dentist was ever admitted. Dentists never recognized a lady or a clergyman in public, no matter how intimate they were in private, for people would say "he has been putting in teeth for them."

There were fanatical people in those days, just as there are now, only more so. They quoted the passage of "An eye for an eye, and a tooth for a tooth." The Quakers, my ancestors, had these words always upon their lips, arguing that if it had pleased Divine Providence to remove a tooth, or an eye, or the hair, it was sinful to oppose the will of God by an attempt to replace it by artificial means.

If a man in those days desired to enter the dental profession, and thought he had ingenuity and mechanical skill enough, all he had to do was to throw down the lap-stone, hang up the strop, throw away the press-board and goose, or the printer's rule, and go in on his nerve. In the first place he had to make his instruments, and this required mechanical skill. If he found a piece of work that

some other dentist had done, you may be sure he examined it carefully and closely. I well remember that in 1833 I went three miles to see a man who had two false teeth. They were made of "sea-horse," and attached to adjoining teeth with fine gold wire that had cut the teeth they were attached to nearly one-third off.

I have instruments in my possession to-day that I made forty years ago, and they are yet doing good service. Many an engagement have I filled by sneaking around just at daylight, by the back way into a back chamber, to prepare and insert two or three teeth for a young lady, making a long, tedious day of it, always stipulating that the cross dog should be chained or shut up.

We first, by measurement, fitted a block of the right curve to fill the space to be supplied with teeth, and then, with a camel's hair pencil dipped in rouge mixed with alcohol, painted the gum and pressed the block on to receive the red impression, then carved, scraped, gouged, and dug, painted and tried again, and so on, until a perfect fit was secured. We then proceeded to carve out the teeth, leaving the enamel in front. It was rude looking, but it filled the bill. We saved every root, and pivoted to it, sometimes fitting six teeth to two roots. If the roots were gone, we tied the blocks in with silk thread, or gold wire.

I have seen a block of six teeth pivoted to the canine teeth, worn until they could be removed and cleaned, roots and all, then put back and worn for a long time afterward without any apparent inconvenience or inflammation. You see that the new process of bridging in blocks of teeth is no new theory. I well remember when a great discovery was made; that of taking an impression of the mouth with wax, and pouring in calcined plaster of Paris. Oh! that was a most wonderful discovery, and it was kept a secret for a long time by the knowing ones; but it finally leaked out. If we happened to meet another dentist, and he was anyways inclined to be social, you may be sure we "set 'em up" frequently, and when he was "full" we wormed the secret out of him, if he had one.

Following the carved work came the old French Bellah teeth, of which I will show you specimens. They were mounted on gold plate with a dowel pin soldered to the plate, and this soldered to the platina clamps baked in the tooth. You will see that they were opaque; a muddy hue; no life-like shade. Still they did not look bad in the mouth of an aged person. Then came the Stockton

pivot teeth. They were a great improvement in their life-like appearance. Dentists advertised the "Silicious incorruptible teeth," "diamond," "pearl," and lots of other fancy names. We struck up a plate, soldered the gold pins, and attached the teeth with hickory plugs; immersed them in water twelve hours or more, and then with a good deal of anxiety removed the plate and examined to see how many had burst by the swelling of the wood. We always directed our patients to keep them wet. If the patient was ill, and by carelessness the teeth were suffered to get dry and tumble off, they were brought back to be again put on where they belonged, and it was quite a job sometimes to get them right.

Stockton sent out his teeth by the peck. I remember that an old man used to come around about once in six months, with an old striped bag full of them. He would pour out about a couple of quarts, and we would make our selection.

Next came the single gum teeth of Stockton, with platina pins baked in the tooth. When Stockton first manufactured his single plain and single gum teeth, with platina pins, to be backed with gold and soldered to the plate, he kept it a secret. He had a large stock of pivot teeth on hand. He sent out peddlers in every direction, put the price down to ten cents each, for Mr. Stockton was "going to change his business." The agents did not say directly that he was going out of tooth making, but hinted as much. The consequence was that every dentist laid in a big stock, used all his ready money, and borrowed more to buy teeth.

In about one month other agents came around with the improved teeth. We were all sold; had to abandon the old pivot teeth and use the new. Then there was some tall swearing at the trick. Tieman, the instrument maker of Chatham Street, had bought a heavy stock. You ought to have heard that old descendant of father Abraham curse Stockton. But it was of no use. He had to succumb to the inevitable.

About 1834 the dentists began to establish offices, or rather rooms, usually at their residences or boarding houses. Ladies and gentlemen, and sometimes a clergyman, were seen calling on them. If a student desired to learn the profession he had to pay liberally for his instruction. I paid a dentist, whose office was under the printing office in which I was employed, fifty dollars for the privilege of getting into his office for one year. He was to answer any

question pertaining to the business—truthfully if he could—and I was to come whenever he called me to hold his patient's head when a tooth was to be extracted. Dentists in those days never attempted to extract teeth without some one to hold the head.

It has been said that history repeats itself. In those days we used to replant and transplant teeth; but we soon found we not only transplanted teeth, but scrofula and other diseases, and the practice was declared "malpractice" and abandoned. In filling teeth we used lead, pounded very thin, and tin foil. As for gold, the only wonder is that we made as permanent fillings as we did; the foil was so harsh and brittle. We always filled the teeth so as not to have the fillings show. If they did, or a gold clasp was visible, our patients always found fault. How changed the tastes of people now. Richmond gold crowns and contour fillings would then have been declared unnatural. If a tooth was gone we tried to replace the same with one as near the shape and color of the other teeth as possible.

About the year 1833 or 1834, I have lost the exact date, the notorious Crawcours of London and Paris opened an office in New York, and for six or eight months made a small fortune by filling teeth with amalgam, asserting its qualities to be that of "making a stump into a sound tooth at once, as if by magic!" They called the compound "the Royal Mineral Succedaneum." These Crawcours were the father, mother, brother, and sister of the amalgam practice. They used the old French five franc pieces, filed up and mixed into a soft paste with mercury. Many people who had good, serviceable gold fillings, that had stood a long time, had the gold dug out and the amalgam substituted, "because the gold showed." These Crawcours had a successful run of it. They were not dentists, and knew but little of the profession. When they found that warrants were out for their arrest they dug out, took a packet ship, and were well out past Sandy Hook before the officers got after them. They brought amalgam into bad odor, but after a few years the profession got to using it again, although there then was, and is now, a good deal of opposition to it. It is only within a very few years that we have learned to properly use it, and to succeed in making good fillings.

Of the bases for artificial dentures we have had gold, silver, porcelain, gutta-percha, pyroxyline, rose pearl, aluminum, platina, cel-

luloid, rubber, and Josiah Bacon. In 1838, when I was located in Syracuse, practicing with Dr. Bliss, there came into the office one afternoon a lady who showed us a set of gum block teeth made by Dr. Thos. Harrison, of Lockport. They looked natural, fitted well, and it was the best piece of work we had ever seen of the block gum teeth. Bliss said to me: "You are young and have no family; suppose you go to Lockport, get acquainted with him, learn his method, and come back, and we will form a partnership and do that kind of work." I thought the matter over and decided to do so; I packed my gripsack, took the grand old Erie Canal for Lockport, where I arrived in good time, and found Harrison was at Lewiston. I took the stage for that place, where I arrived about eleven P. M., and found him at the Lewiston hotel, lying in the corner of the bar-room, behind the stove, pretty drunk. The prospect did not look promising, by any means. Next day I made his acquaintance, told him what I was after, and proposed to help him. He consented, and I assisted him to sober up, got his hair cut, bought him a new suit of clothes, and he made quite a respectable appearance. We went to Lockport, took a back room in the third story of a block, put up a furnace and commenced business. But I found that the work did not stand the test of time in the mouth. The pieces were porous, absorbed the saliva, and soon became discolored. We could not repair by reheating, for they would fly all to pieces, and pop like corn. He kept no record, never weighed the ingredients, guessed at the amount, and as a consequence never had two bodies alike.

Here let me say that I have spent more time, passed more sleepless nights sweating over a hot furnace, trying to surmount difficulties, or making block gum teeth moulded over a cast of the mouth, and to be worn in the same mouth from which the cast was taken, than over any other branch of the profession, without ever having succeeded or been thoroughly rewarded, and I never expect to be; the shrinkage, warping, checking, bulging, never has been overcome. The composition of the block must be so equalized that while some of the materials shrink others must oxydize and increase in bulk. This retains the shape of the cast, but makes the body porous. Then you rely on enameling to fill the interstices. It will do this, in a measure, on the surface, but not all through the body, which will absorb the fluids of the mouth, with some patients more than others.

John Allen, of New York, came the nearest to perfection of any man, but his work failed in time. His method had the advantage of using teeth already baked. A platina plate was swaged, the teeth backed with platina and soldered to the plate with fine gold foil. The interstices were filled with a granulated body, the piece invested in asbestos and plaster paris, and baked. Then it was enameled and baked again; but to an experienced eye, in a strong light, cracks or checks would be apt to show on cooling. By oiling the block the checks would not show; but time and human saliva are very searching, and when a plate began to give out it went all to pieces. It had one advantage; it could be re-enameled and baked again.

About 1835 or 1836 Creosote was introduced to the public, and created a good deal of interest in the medical and dental profession. Some dentists went so far as to say that they had abandoned extracting teeth, and one in Syracuse advertised in large letters on the awning post, the whole length of a block: "Toothache cured by Creosote without extracting." He charged one dollar for introducing a small pledget of cotton saturated with Creosote, and covered with gum mastic and turpentine.

A great many discoveries and some valuable improvements were made. One dentist, in an eastern city, had very delicate instruments with which he "cut the ligamentum dentatum," and the teeth tumbled out easily, and our patients would ask us, "have you got an instrument to cut the ligamentum dentatum?"

In 1837, a dentist by the name of Jacks, of Catskill, invented and patented a double air-chamber plate along the alveolar ridge. This chamber was perforated with one-eighth inch holes about half an inch apart, and soldered to the main plate. The patient sucked the gum into the holes as one would suck a key on the lips, and, if worn long enough, the "teat" would become strangulated and drop off, remaining in the air chamber, which would also become filled with food, mucous, etc. There was no way to get at it to cleanse it, and it made one of the most filthy dental structures imaginable to mend, and forced one to open his doors and windows to let the stench out.

Another dentist patented flexible rubber air chambers, and sold the exclusive right to any dentist in the locality who would pay the highest price. The flexible had quite a run for a time, but the

rubber decomposed in the mouth, and the dentist soon had all he could do repairing plates broken through the center, and the patent went into oblivion.

Some one has said that instead of going to California to-day for gold, it would be better to go to our cemeteries and get the gold buried with the dead. I have taken some pains to examine the assertion, so far as my own practice is concerned, and I have found that from 1839 to the introduction of rubber work, the average amount of gold plates, gold solder, and gold foil used in my practice amounted to a trifle over thirty-one dollars each month. One can see that if others in the profession used the same amount (and many, probably, used more), a vast amount of gold is buried in our cemeteries.

In 1848, Morris Levett patented an enamel for coating a silver or gold plate the color of the natural gums, doing away with gum teeth. A man by the name of Englebright was the agent to sell the same. He was a sweet talker, and showed many specimens of gold and silver plates enameled. They looked well, and seemed to be a desirable improvement. Levett said he had sold over forty thousand dollars' worth in the last three months. He came to Buffalo, visited the dental offices, and offered to sell office rights, but preferred to sell territories. We met at the office of a prominent dentist to see the enameling process. I was requested to conduct the experiment. While doing so, first one would retire with the vendor, then another; finally the dentist in whose office we were retired and had a private talk, and when they returned we were told that the doctor had purchased the exclusive right to the county of Erie, and if we wanted an office right we must apply to him. He had not made up his mind yet what would be the price, but would let us know in a few days. We all looked chap-fallen, took our hats and stepped down and out. After I retired to bed, the thought struck me that the enamel I had used in making artificial eyes might answer the purpose. The next day I tried it, and found it worked equally as well as Englebright's. I enameled a plate, showed it to him, and he would not believe but that I had used Levett's, until I enameled another piece in his presence, when he was satisfied that Bristol's artificial eye enamel would do as well as his.

He had taken in part payment for the exclusive Erie County

right a gold watch valued at one hundred dollars. He gave half of an office right to me for Lockport, valued at twenty-five dollars, if I would keep still. Having occasion to visit Lockport, where my family resided, I found Englebright there. He had got the dentists all excited. I had given him an order on my partner for his half of an office right. In the evening they all met at my old office, and again I was requested to conduct the process. While doing so the old game was repeated; first one would retire with the agent, and then another. Finally Dr. O. W. May offered him his house and lot for one-half of the State of Pennsylvania. I tried to stop May, but it was of no use. He was bound to get rich out of the enamel. Englebright called me out and said: "Your family is sick, and you know too much. Take this gold watch and clear out. Stay away from Lockport one week." I pocketed the watch and left, next day returning to Buffalo. In about a week Englebright returned to Buffalo. In the meantime one Buffalo dentist had written east, and found the thing a humbug, and threatened the agent with prosecution for fraud. They finally compromised by the agent giving back the watch and part of the money, he taking back the right to Erie County. He came to me and said if I would give up the watch he would have the right assigned to me. I did so, and am still the sole owner of the right to Morris Levett's enamel for Erie County. If any dentist in Buffalo wants an office right, let him come to the captain's office, and I will give him a license to enamel for life, free of charge. Don't you call that liberal?

When I look back along the pathway I have trod in dentistry, it is gratifying to observe the great improvements that have been made from time to time. The profession, from a small number of self-educated men, jealous of each other, has now become a multitude of liberally educated men, ready to impart to one another all desirable discoveries and improvements, all trying to elevate the practice. It is especially gratifying to me that I was one of the four men who shook hands on the platform of the depot at Trenton Falls, pledging ourselves to go home and set to work to found "the Western New York Dental Association," and to invite all practicing dentists west of Cayuga Bridge. This we did, and the call was signed by B. T. Whitney, Buffalo; Geo. E. Hays, Buffalo; E. F. Wilson, Rochester; L. W. Bristol, Lockport.

At the first meeting B. T. Whitney was elected president. We had a largely attended meeting, and a kind of dental love feast, at which some acknowledged that they had done things in the past that were unprofessional, but they would do so no more.

That association was the entering wedge that culminated in our present State society and Law. Two of the men that signed that call have gone to their long home, honored and beloved by all their professional brethren, and their memory will always be cherished. Two are left to hope and pray that a still brighter and better future is in store for those practicing the profession throughout the United States.

I have had my day, and it has, in a measure, been a stirring one. I am now getting old, and my locks are whitened. You have urged me, before I shall have left you forever, to give you some of the reminiscences of early dentistry. This paper is in response to that request; it is necessarily a thing of shreds and patches, but it will give you some idea of what we older ones have passed through, scenes never to be re-enacted. We old heads must now step down and let you younger men have your day, and I hope it will be a better one than ours has been.

SUGGESTIONS FOR THE CONSTRUCTION OF ARTIFICIAL CROWNS AND BRIDGES.

BY DR. J. H. SPAULDING, HANOVER, GERMANY.

READ BEFORE THE AMERICAN DENTAL SOCIETY OF EUROPE, AT ITS MEETING
AT VEVEY, SWITZERLAND, 1884.

The discussion of the merits and claims of artificial crown and bridge work is likely to have somewhat of a revolutionizing effect, in both the operative and mechanical branches of dentistry. It will eventuate, as have all other marked departures from the ordinary routine teachings in dentistry, in two parties; there will be some who will hail this practice as a method to be urged at all times and under all circumstances and conditions, and who will recognize no difficulty too great to be "bridged over" by porcelain and gold. It is natural that it should be so. There will be enthusiasts in every new field, and especially in any department which has for its foun-

dation principles of value, and capable of being used for great good and advantage. In every such field enthusiasts are apt to go too far, and to assume that a principle of good cannot become one of positive injury if improperly or injudiciously applied. Others will occupy the other extreme, and condemn, oftentimes without a hearing, any departure from the known and tried methods with which they are familiar.

Were it not for these two extreme classes which serve to keep each other in check, we might not be sufficiently attentive to look for the medium which serves the greatest good to the greatest number. For the claims and pretensions of the artificial crown work I have the highest respect and admiration, because I believe that through the methods prescribed we may be able to save many teeth which have heretofore been sacrificed because we did not know exactly how to deal with them. Dr. J. L. Williams, of Hartford, Conn., has written excellently upon this subject. I shall not rehearse what he has said, but will only suggest the methods of making the gold, and gold-and-porcelain crowns for molars and bicuspid, which I am using. My manner of making the incisor and cuspid crowns is the same as his, and is, no doubt, familiar to you all.

After preparing the root so that its diameter is nowhere greater than just at the free margin of the gum, I take a narrow strip of sheet lead or tin, of sufficient thickness to bend easily and remain in any position, and adjust it to the root just where I want my gold crown to fit most closely. Pressing with suitable burnishers into any irregularities, and bringing the ends squarely together, I have the exact length of the gold strip which must encircle the root. Using for this 22 k. gold of about 32 English standard gauge, I now cut it off and bend it with pliers to fit the irregularities, as I did the lead, and bring the ends squarely together and solder. All this takes perhaps thirty minutes. I now place my gold band upon the root, pushing it up as far as I intend it to go when finished, and take an impression with this ring in position, remove the impression and replace the ring in the proper position therein, and fill with plaster. I now have a model of the case with the gold ring upon the root I am crowning. I take also an impression of the opposite jaw to secure the articulation. With the models of both jaws, and the proper articulation, I can fit and shape my crown as I need, using strong resin wax to build up for occlusion with the opposing teeth.

When the proper shape is secured, take 24 k. gold, rolled very thin, say No. 38 or 40 English standard, and burnish over the outside of the wax, bringing the edges down outside the narrow gold ring. I now invest in plaster, and remove from the model, taking out all the wax from the inside, and flow solder over the entire surface of the inside of the crown. This stiffens the 24 k. gold, and makes it sufficiently thick to resist wear in use.

With a little polishing it is ready to put in position, and is of better shape than it is possible to secure in any other manner, save by swaging with dies, and all is done easily and quickly. If it is desirable to have a porcelain face and grinding surface, as is sometimes the case in bicuspid and first molars, I make my ring as before, only using a gold strip as wide as the full length of the desired crown. I place this ring upon the root and take my impressions as above, making my models and securing the proper articulation. I now cut away from the buccal wall of the gold ring down to within a line of the gum margin, and select the proper porcelain molar or bicuspid, fit it into the ring, grinding the porcelain, or bending the gold as may be necessary, until the fit is secured. I next place my ring in position in the mouth, driving it well up, and dry off the end of the root, using the rubber dam if possible, and fill the band with Poulson's cement, and press my porcelain face into position. Removing the excess of cement, and allowing, of course, a few minutes for it to harden, my crown is finished. In cases where necessary, I always place a headed pin in the root canal, either with cement or amalgam, before placing the crown in position; the head of the pin is allowed to stick out, to be grasped by the cement with which the crown is filled.

No objection which has been urged against the "bridge" by its opponents can have any application to the crowns as described above, or in the article of Dr. Williams. The root, if properly treated, is as safe as any tooth which has lost its vitality, and is thoroughly protected from further decay; and, if well done upon a reasonably good root, it will take care of itself for many years. There is also a large class of teeth which are wasted by abrasion and some forms of dry decay almost to the point of pulp exposure, and which are not amenable to treatment that will conserve their vitality by any method of filling, and which can only be securely protected by capping.

For the principles upon which the "bridge" is constructed, and upon which it bases all its claims to public favor, I also have high respect, and I believe that under some conditions—many perhaps—the bridge, properly made, will prove serviceable, comfortable, and as cleanly as the natural teeth in the same position.

It is to the almost unlimited pretensions of the bridge-work enthusiasts that I object. They only limit themselves to "four roots in the proper position," upon which they engage to construct an entire denture, without any plate whatever.

This looks inviting upon paper, and encouraging to those unfortunates who are obliged to wear artificial teeth, and proves, no doubt, a good advertising medium, but I doubt very much the propriety of such extended bridges, and believe they will prove uncleanly, of comparatively short duration, easily broken, and with difficulty repaired, as well as very expensive.

To meet the requirements in cases where the permanent bridge is not practicable, I beg to suggest some methods which can be utilized with much comfort and satisfaction to the patient. A case commonly presenting is one where all the molars and second bicuspid of the lower jaw are gone, and is one for which it is always extremely difficult, and sometimes almost impossible, to make a plate that will set easily and remain in place, entirely dependent upon suction. If, as is frequently the case, there is decay in the first bicuspid, they are to be cut off and prepared as for the single crown. Take a sharp impression of these roots, and make a gold cap to fit the exposed end of each; make a hollow cylinder of gold, and a pin to fit the cylinder. Now, after enlarging the nerve canals, place the caps in position and punch holes through the top to correspond with the nerve canal opening, and place the cylinders, cut to the proper length, through the opening in the cap into the canals; fasten with resin wax, remove and solder. This done, place permanently in position upon the roots with cement (using, preferably, Poulson's or Rostaing's). Next place in the metal canals the pins already made to fit them, the ends projecting, and take an impression as for any ordinary plate. The pins will come away with the impression, and show exactly the position and length of the canals. Now place *upon these pins* cylinders of any metal most convenient (brass, lead, tin), and fill the impression with plaster for the model; thus you have in the model the exact counterparts of the

metal canals in the mouth. You now place the pins in these canals as you did in the canals in the roots before taking the impression, allowing the ends to project as before, and proceed to make the plate as for any ordinary case. It is well to flatten, or roughen, or head the ends of the pins projecting from the canals in the model, so that the rubber—if rubber is used—will more firmly grasp and hold them. When your piece is finished it will set easily and steadily in the mouth, and is not readily moved about by the tongue or muscles, but it can be easily removed for cleansing, and the amount of plate material you need is reduced to the minimum. Another advantage is that the plate need not touch any of the natural teeth remaining in the mouth, thus preventing decay, which plates so often cause. Another case: molars and bicuspid gone, except wisdom teeth, which are badly decayed. Grind down the crowns of these teeth, shaping them properly, and make gold caps for both, and on the top of each solder a short, square pin, and when finished place in position upon the roots with cement. Now take an impression and make up your denture in the usual way, allowing the material of which the plate is composed to extend over the gold crowns, fitting closely around the pins described above. The caps over the wisdom teeth serve a double purpose; that of preserving these teeth and affording a support or fastening for the denture.

Another case shows the lower teeth all gone, except cuspids, which are either sound, or have good roots and in good condition. Extract all roots except cuspids; cut these off and proceed as before to make the gold caps with canals and pins, and place in position with cement, continuing exactly as described for the first case. When complete you have a lower denture entire, which stays where it is put in the mouth in spite of stubborn muscles and tongue, with the roots thoroughly protected and safe to support the denture for many years. If the pins should become a trifle loose by wear, they can be split and opened a little so as to spring into the canals, thus holding more firmly. The cases I have cited are only those of the lower jaw, but the same principles apply with equal advantage to any such case on the upper, or any modification of these conditions upon either jaw. These suggestions may not be new to many of the members of your society, but they will, I am sure, be of some value to many operators in America, where the custom of

extracting all teeth and roots preparatory to inserting the artificial denture has more generally obtained than in Germany. That such a practice is a thing of the past there are already hopeful signs, and the employment of the methods suggested herein is better adapted to the purse and skill of patients and operators in the ordinary walks of the profession, than the very expensive bridges requiring a high degree of skill in construction, while possessing some advantages over the latter.

SENILE DECAY.

BY J. SMITH DODGE, JR., M. D., D. D. S.

Every dentist witnesses the rapid decay of teeth in persons of advanced age, and the phrase "senile decay" is an accepted one. Yet little or nothing is found in the books about this condition.

Of course, in general the causes and characteristics of decay are the same at all times of life, but in the very old the process has peculiarities of its own, which have both scientific and practical interest. At what age we may be called *old*, and therefore entitled to lose our teeth in this way, cannot of course be stated, but my observation has found the peculiarities about to be described only in those who exhibit signs of general bodily decay; and we may perhaps fix the period in which senile decay actually comes under the dentist's hands at from sixty-five to eighty.

The teeth thus attacked are naturally such as have resisted the wear and tear of a lifetime. And I have generally been struck with a certain perfection of form and color, a good, wholesome look, which would put them in the very highest class of teeth. I think, too, I have oftenest seen this decay in teeth never previously attacked, although that is not constant. The great and striking feature is what may be called the *unbounded* character of the decay. With a moderate opening the whole interior of the crown may be destroyed, leaving little more than the shell of enamel. At the cervical border, too, proximal cavities extend under the gum to a most unusual degree. Another peculiarity is the rapidity with which the destruction proceeds. As these patients are seldom accustomed to have regular periodic examinations, it is not always

easy to judge how long the trouble may have existed. But I have more than once seen senile decay far advanced in teeth which had only a few months before been examined and found good. Rapid progress, too, is proved by the large amount of decalcified dentine not yet softened, which is one of the constant features of this condition. Still more noticeable is the dulled sensibility of these teeth. I have hardly ever heard of their aching, and the process of excavating gives little or no pain. Indeed, care must be used, or a drop of blood will be the first indication that the pulp is in danger. I have several times cut to the pulp, so that it bled, without the patient's feeling it.

These characteristics all seem to be dependent on a greatly reduced innervation of the tooth. Many facts might be appealed to, some familiar and some less observed, to prove that the great nervous supply of the teeth is needed to maintain their functional competence. And when the tooth is attacked by decay, all this power is used to resist the disease. In favorable cases it is certain that a protective zone surrounds the decayed dentine, limiting, retarding, or even arresting its progress. In all cases it is probable that the effort is made, and has some result, so long as the activity of the dental nerves remains unimpaired. Of course the heightened sensibility of carious cavities is the result of this intensified innervation. But when the general decline of vitality reaches the dental nerves, they are no longer able to respond to local attacks. All resistance to destructive agencies is at an end, and the unlimited, rapid, painless decay above described, takes place. The differences, therefore, between senile decay and the decay of earlier life should furnish valuable hints for the study of that vital resistance to decay which is as yet an unregarded, but a vastly important factor in its history.

The chief practical interest of senile decay attaches to the treatment. The use of gold is almost out of the question. Aged patients cannot and should not be asked to bear the strain of very tedious dentistry. And from the analogy of the rapidly decaying teeth of children it may be doubted whether gold, if used, would preserve the tooth. Amalgam has not given me satisfaction. The enamel soon fails about the filling, and the same process is resumed, with the same speedy results. But gutta percha meets the case exactly. The mastication upon such teeth is not forcible, and

the softness of the material hardly counts here, while its protective power is exactly what these teeth call for. I have again and again seen the mere outline of a tooth filled with gutta percha hold its own beyond all expectation, to the great pleasure and advantage of its owner. In fact, the *remnant* of a gutta-percha filling in such a tooth is worth all the metal it can be made to hold. The edges of enamel may stand out, the soft filling may have been grooved toward the grinding surface and massed into a projection against the cervical wall, the surface may have grown brown and unsightly, but the old man will assure you his tooth is a daily comfort, and it would be a sad blunder indeed to take out the unsightly plug and make thorough work of it with metal. "Handsome is that handsome does."

THE TRANSPLANTING AND REPLANTING OF TEETH.

BY A. H. FULLER, M. D., ST. LOUIS.

Dr. Wm. N. Morrison, in a paper under the above heading, read before the St. Louis Dental Society, and published in the July number of the *Missouri Dental Journal*, 1882, says, page 244: "Among all such cases produced by others I have never seen a living pulp, which is my reason for attributing to the dead pulp the whole responsibility for the trouble. In 1862 I performed that operation with that distinctive feature for the first time, reports of which will be found in the transactions of the American Dental Association for 1875 and 1876, wherein I described what I pronounce the indispensable operation of the removal of the root vessels and a thorough filling of the root canals. I can find no record of this method of operation being performed prior to 1862."

In "The History and Treatment of the Diseases of the Teeth, etc.," by Joseph Fox, 1806, page 56, under a chapter on "Fractures of the Teeth," he says: "In plate III., figure 9, is a representation of two central incisors which were broken by a fall. Figure 10 is the posterior view of these teeth, the fracture of which will be seen extending into the cavity.

"In an accident of this kind, affecting either one or both teeth, if the person should apply for assistance immediately after the acci-

dent, and before any inflammation has supervened, I should recommend that the tooth or teeth be extracted with great care.

“When this has been done, the cavity in the tooth should be cleared out as much as possible, and some gold leaf be introduced, so as completely to fill it up.

“After the cavity has been thus stopped, the teeth are to be restored to their sockets, and there to be confined by a ligature; they will soon fix, and in a few days be as secure as ever, and may afterwards remain for a great number of years without inconvenience.”

The attention of the dental profession is called to this subject, simply as a matter of history—Mr. Fox recommending the operation nearly eighty years ago, and forty years before filling the pulp canals in teeth was generally practiced.

AN OBJECTIONABLE CLAUSE.

BY W. C. STARBUCK, D. D. S.

At the last meeting of the American Dental Association a suggestive report was presented in reference to some changes in the period of membership. This report, the committee state, “had been prepared hurriedly, and was submitted in a crude form in order to get the views of others.”

While approving a portion of the report I most earnestly protest against the adoption of those parts of it where it is recommended that “the printed transactions for each year be sent *only* to members present at that meeting,” and that “any permanent member who fails to attend the annual meeting for three consecutive years shall cease to be a member.”

The amended constitution up to and including the session of 1882, provides, Article III., Section 5, that permanent members shall consist of those who shall have served *one year* as delegates and complied with the requirements of the Association.

Had I known or suspected that any such measure as the one above quoted was likely to be presented to the Association, I most certainly should not have become a permanent member.

The adoption of a rule that any member who fails to be present—no matter from what cause—for three consecutive years shall be

debarred from membership would, no doubt, be a cause for regret to many of the members.

On account of illness I have not been able to attend some of the meetings; but I have promptly paid my annual dues, and consequently I feel that I am entitled, as long as I am a member in good standing, to the "right and privilege" of having a copy of the printed transactions, and of remaining a member of the Association as long as I comply with its rules and regulations as they now exist. Should the suggestion above referred to, made by the committee, be adopted by the Association, I shall undoubtedly send in my resignation.

Reports of Society Meetings.

AMERICAN MEDICAL ASSOCIATION.

SECTION OF DENTAL AND ORAL SURGERY.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY JNO. S. MARSHALL, M. D.

"Report of a peculiar case of malformation of the jaws, and the treatment;"* by W. W. Allport, M. D., D. D. S.

Mr. Chairman and Gentlemen:

The plaster casts I exhibit to you are models of a case that I have recently had under treatment. It had excited considerable interest and discussion among some of the surgeons and dentists of his native State, but no definite treatment had been decided upon.

On taking up his residence in Chicago, the dentists at his home in New Hampshire advised that he put himself into my hands for such treatment as might be thought best, and the case is, I think, of sufficient interest to warrant me in reporting it to the section.

Mr. F. L. S——, aged twenty-five years, consulted me January 22, 1884, for a malformed condition of both maxillary arches. The young gentleman is a graduate of Harvard College, and a civil engineer by profession. The malformation was such as to make it

* Journal of the American Medical Association, Oct. 25, 1884.—Through the kindness of Dr. N. S. Davis, the editor, we are able to print the cuts with the paper.

impossible for him to properly masticate his food, and his personal appearance, especially when eating, was very unsightly, and a source of great mortification.

The trouble was largely due to a lack of development of the upper jaw, consequent upon a failure in the formation and development of the temporary and permanent teeth. Just how many temporary teeth were erupted I am unable to say, but from the best information gained it is evident he did not have the full complement. When the examination was made there were only seven teeth in the superior jaw, two temporary cuspids, two permanent central incisors, and three molars; the first and second upon the right side and the second upon the left, all of them somewhat imperfect in form, and these are the only permanent teeth that have made their appearance in this jaw.

In the lower jaw the six anterior temporary teeth were still in position, though much worn away on the cutting edges (see cut No. 2), and the second temporary molar on the left side, and both temporary molars on the right side, each considerably decayed. The permanent teeth were the first bicuspid on the left side, and the first molars on either side.



Cut No. 1.

The angle of the lower jaw was less acute than normal, causing the jaw to protrude to a slight extent, but this would have caused no marked deformity had the superior jaw been properly developed.

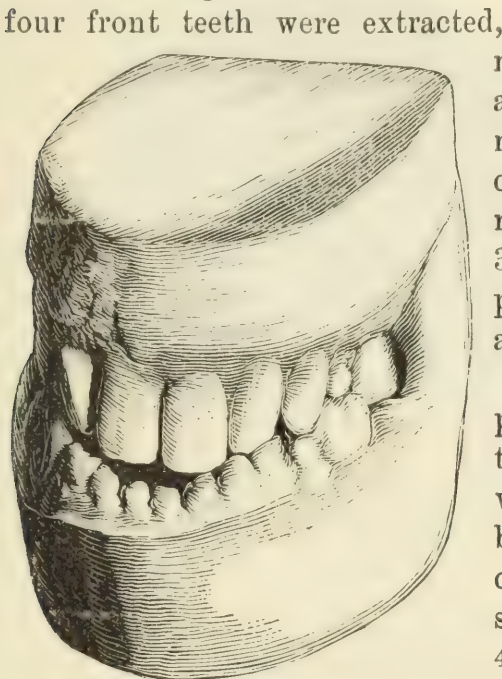
Cut No. 1 represents a front view of the case (taken from plaster casts), with the jaws closed to the full extent.

Cut No. 2 represents a side view of the same models, which shows the extent of the recession of the upper jaw and the protrusion of the lower; also that the occlusion was such that when the jaws were closed the bite was so short as to produce a most unsightly appearance of the face. To lengthen the bite permanently, gold

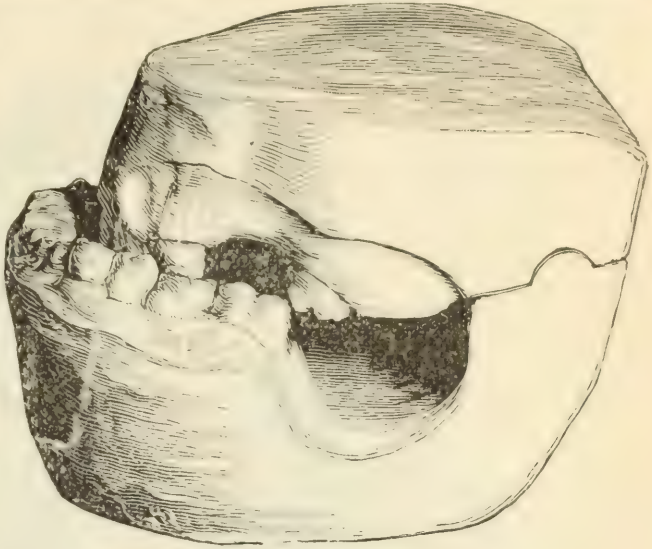
crowns were fitted over the only superior molar of the left side, and so shaped as to cover in their occlusion about one-third of the grinding surface of the permanent molars in the lower jaw.

By this process the bite was lengthened three-fourths of an inch, as evidenced by cuts No. 3 and No. 4, which placed the jaws in a normal position.

After the jaws were thus thrown apart the



Cut No. 3.



Cut No. 2.

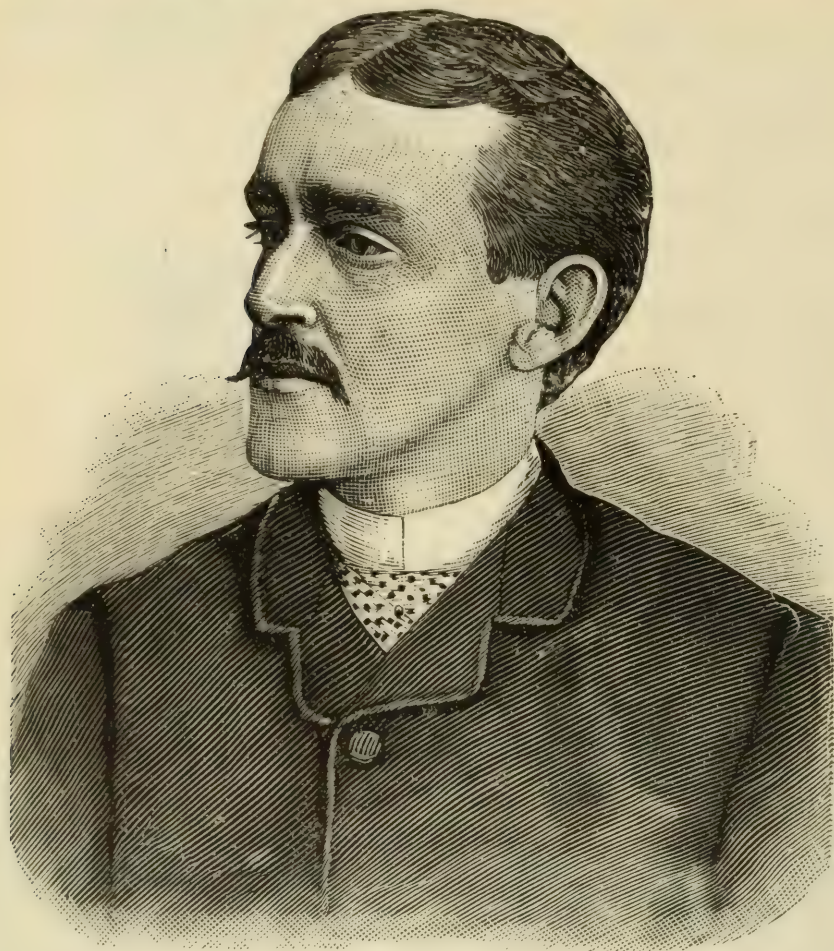
four front teeth were extracted, a gold plate was fitted to the mouth and secured by heavy clasps around the gold crowns, and then mounted with artificial teeth, secured to the plate by rubber attachments, as represented in cut No. 3. Cut No. 4 is taken from a photograph of the gentleman after the operation was completed.

It is a matter of regret that a photograph was not taken with the mouth closed, before the jaws were permanently thrown apart by the gold crowns, that the great change in the expression might be seen and contrasted with cut No. 4. But this can readily be imagined.

DISCUSSION.

Dr. Friedrich—Said he believed he had seen a case reported which, he thought, had been treated somewhat after the manner

described by Dr. Allport, though in that case the teeth were not extracted, but the plate was made to fit over them.



Cut No. 4.

Dr. Williams—Moved that, owing to the lateness of the hour and the desire of many to leave by the early evening trains, discussion of the paper be passed.

The section then adjourned.

PROGRESS UNDER DIFFICULTIES.

A dental journal, to be called the *Dental Review*, is to be established in Russia. What can be its scientific status in a country in which, by an imperial decree, the works of Agassiz, Huxley, Lubbock, Herbert Spencer, Vogt, Zimmerman, and Charles Darwin, are under interdict; a land in which a demonstrated scientific fact is not truth unless it receives the approval of the church through its head?

PENNSYLVANIA STATE DENTAL SOCIETY.

SIXTEENTH ANNUAL MEETING, HELD AT WILKESBARRE, JULY
29, 30 AND 31, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY W. H. TRUEMAN, D. D. S.

(Continued from page 641.)

EVENING SESSION.

Dr. Henry Leffman, of Philadelphia, read a paper, entitled
"Reflections on the Practical Bearing of the Germ Theories of Disease."

The germ theory of disease has probably had advocates ever since the time that the microscope enabled investigators to detect the minute forms of life, long before the present methods of culture and illumination and staining placed in our hands the power of differentiation much greater than mere enlargement; but it is only within the last few years that a series of demonstrations, thoroughly logical in character, have been presented.

A dental society would have little practical interest in these questions if it were not for the fact that a strong disposition has been shown of late to ascribe to micro-organisms a causative relation to dental caries. It is, of course, perfectly natural that such a theory should be advanced. An exceedingly common and serious affection, occurring under all conditions, the exciting cause not known, it would naturally follow that a new and attractive theory of disease should be extended to such an affection, especially as the microscope reveals a variety of organisms in and around the cavity of decay. There is no doubt that the germ theory of disease is becoming more generally accepted; in relation to some diseases the doctrine has been established for years, but these were rare diseases; malignant pustule for instance. No one who investigates this disease seems to doubt its bacillar origin. To discover the practical bearings of the theory we must turn to diseases more general and of greater importance, as for instance the bacillar origin of phthisis. During the past three years the discoveries of Robert Koch have been subjected to the closest scrutiny, dictated only by a scientific spirit, but undoubtedly biased by strong unbelief and personal opposition. Every

demonstration, method, and inference Koch has put forth has been attacked, and efforts have been made to give them other significance than that he has assigned, yet his position appears to be unshaken, and his followers increase daily. However unwelcome the truth, I think we may feel assured that the tendency of opinion is to the view that consumption is due to micro-organisms, which are reproduced in the affected tissues.

Now let us see what are the practical bearings of this doctrine, and how far they are applicable to the microbe theory of caries. It is generally admitted that there must be a predisposition; this is essential. By this is meant a condition of the system, local or general, which fits it to receive and become the prey of micro-organisms. A paper has lately appeared, by Arthur S. Underwood, lecturer on dental anatomy and physiology at the Dental Hospital of the London Medical School, in which the microbe theory of dental caries is very strongly advocated. He remarks that the initial stage, the destruction of the enamel, is due to an acid secretion, the result of a vegetable growth. A number of experiments are detailed, which go to show that decomposing animal or vegetable matter containing organic acids is incapable of producing marked change in tooth structure, unless under conditions in which micro-organisms can be developed. We must remember the experiments were made upon teeth out of the mouth, and under conditions not found in the mouth; this detracts very much from their practical value. The point, however, to which I desire to call especial attention is this: even if we admit the agency of micro-organisms, the practical bearing of such doctrine is slight. In this disease, as in all others, the result is due largely to predisposition. It is well established that dental decay is not purely traumatic, but that susceptibility to it is governed by systemic conditions. Original predisposition may govern its greater or less extent, and while we may agree that the real process is local and external, yet this local and external action is preceded by a local reduction of the vital resisting power of the tooth structure. The doctor referred to various diseases of fruit trees and of plants, such as mildew, the various blights, etc., as examples of apparently localized pathological changes, purely traumatic in character, yet in all cases, as shown by careful experiment, there is first a depressed vitality which renders the plant susceptible to external agents.

In conclusion, he held that the demonstration of micro-organisms as a cause of dental caries does not add anything practically to the means of prevention and treatment of the malady, over and above that which clinical observation has taught. If it leads as similar views in general medicine are now leading, to exaggerated confidence in antiseptics and germicides, it will do more harm than good.

Dr. Pierce—Referred to the three theories advanced to account for dental caries, known as the chemical, the pathological, and lastly the germ theory, and questioned if either could be considered a full explanation of their cause. The destructive action seemed a complex one, and probably at some stage of the process each contributed to the result. The later investigations have been conducted so carefully, especially those of Dr. Miller, and they seem to confirm previous observations so markedly, that they deserve very careful consideration. It is too soon, perhaps, to estimate their practical value, or what effect they may have upon our practice. We cannot know too much of the subject; the more we know of the cause and progress of a disease, the better will we be able to treat it. He thought that in the future, effort will be directed more towards prevention than to improvements in methods or materials for filling. He gave a history of the theory that decay was due entirely or in part to minute forms of vegetable or animal life, from the time that a German writer first directed attention to it some twenty years ago. Then, as now, the destruction was supposed to be caused by vegetable growths, a number of forms of which are always to be found in the oral cavity, and especially in the cavity of decay. He referred to a paper he had published some years ago, in which these forms were illustrated and described. It has been a mooted question whether they are the cause of decay, or merely thrive in its presence; whether they are the real disintegrating agents, or whether their presence so changes the secretions that they become destructive. If the recently published statements of Miller, Underwood, and others are confirmed, the latter idea seems more probable.

Dr. C. S. Beck—Spoke of his observations in the winter cultivation of greenhouse plants, and the constant watchfulness necessary to guard them from the various diseases and pests Dr. Leffman had referred to. In the greenhouse the plants were in an unnatural condition. It was a forced growth, out of season, and in what is really to them an unnatural atmosphere; in consequence their

vitality is low; this is a predisposing cause. The exciting cause is always present. As long as the plants are kept in vigorous health there is no trouble; but if from any cause their vitality is still further reduced, either from excessive dryness or excessive moisture, too much or too little heat, etc., even if this condition exists but for a few minutes, within a short time the disease attacks every part of the plant that has suffered. Growing naturally, they may be subjected to far greater changes without this result following. So with our bodies and with our teeth; the active causes of disease are always present, but are powerless for harm until, either generally or locally, a depressed vitality acts as a predisposing cause. He had been much interested in watching the gradual development of this theory, and hoped that as it becomes better understood, we may be able to succeed as well in preventing decay as we now succeed in filling the cavities it has made.

Dr. Gerhart—Suggested that if the idea of Dr. Koch was correct, there was little use for quarantine; if it was essential that there must be a reduced vitality, and the disease germs are always present, what does quarantine regulations accomplish? Either he did not understand the germ idea, or he could not accept it. He noticed when the potato rot was epidemic in this country, some twenty-eight years ago, that it affected the finest and largest potatoes first and most severely; their size seemed evidence of vigor and healthy growth, yet they suffered most.

Dr. Leffman—Replied that they, being more highly cultivated and farther removed from the original type, were of lower vitality, and naturally offered less resistance to the disease.

Dr. Pierce—Remembered the potato rot epidemic referred to by Dr. Gerhart, and said he had no doubt it was due entirely to the peculiar and unusual climatic influence of that year. The spring and early summer had been dry and cold, and very unfavorable to vegetation. This was followed by frequent rains, and a moist, warm atmosphere, or, as the farmers say, "good growing weather." Vegetation of all kinds began to grow with great rapidity, and this condition naturally produced a low degree of vitality that was unable to resist the disease germs. The fact that the potato rot was so prevalent and destructive that year, was no evidence that the disease germs were more numerous or more active; they are always present, and every year some potatoes rot, but not to so great an extent

as to attract attention. It is the same with the rust on wheat. If climatic conditions favor a low vitality in the plants, they are predisposed to its attack, and we have general complaint of the loss it occasions; but ordinarily so few plants suffer that it is not noticed. That diseases are more malignant and unmanageable during epidemics, is due to the same cause. The climatic conditions may be unhealthy, people become excited, and from various causes are less able to resist the disease. The theory is not at all new, but the introduction of purely scientific methods of study and research is so recent, and has opened so wide a field to investigation, that we can hardly see to what it may not lead. The tendency at present in all branches of medicine is largely to prevention, and the result is seen in the fact that diseases that formerly as epidemics extended over large areas and almost depopulated cities, are now far less frequent and fatal, and are usually confined to the locality in which they are developed.

Dr. William H. Trueman—Considered the subject presented of great and, in the light of recent investigations, of increasing importance. The germ theory explains many pathological conditions that have long been mysterious, and in surgery, especially, its adoption has been followed by remarkable results. Operations that formerly were considered extremely hazardous are now performed with comparative safety; and so generally is it accepted, and the beneficial results of the precautions it suggests so widely recognized, that few surgeons attempt even trifling operations without adopting them. It may be that harm has been done by depending upon antiseptic methods to the neglect of other equally important precautions, but that is no fault of the theory. The recognition of the baleful work of these infinitesimal, omnipresent germs, and the adoption of means to either destroy or exclude them, has been a wonderful advance in all departments of medicine. Now, if we can use in the mouth some safe and efficient germicide, may we not hope by that means to check the ravages of decay? If we can use in the cavity some agent that shall prevent them from again entering it, that may assist very materially in making our present methods of filling more permanent and useful. In fact, the preservative properties some filling materials possess is probably owing in a great measure to the salts formed by their oxidation. The possibilities suggested by this theory are well worth a careful and earnest study.

The morning session of Wednesday, July 30, was omitted, to allow those members, who desired, to participate in a visit to a coal mine, arranged by Dr. C. S. Beck. About thirty, including a number of ladies, descended Hollingbrook Mine, No. 2, in charge of Supt. Smythe, who proved an interesting and instructive guide. This mine was selected on account of its freedom from gas, thus permitting the use of open lights, and also as, being remarkable dry, it could be explored with comfort, at the same time giving an excellent idea of the various operations of mining and preparing coal for the market. After the gentlemen were provided with lights, all stepped upon the elevator and were gently lowered about six hundred and forty feet. The galleries we found high, wide, and well ventilated, and as the visitors walked along, listening to Mr Smythe's description of the various methods of mining, it was hard to realize that they were so far removed from the busy, active world above; and the information that they had passed under a wide river, and were at that time about nine hundred feet beneath the town of Wilkes Barre, was received with surprise. The dangers of mining were illustrated by one of the workmen to whom our attention was called, who, with five companions, had suffered from an explosion of gas, and he alone survived. The scars on his hands and face showed how severely he had been burned, and how much he had suffered. Although the utmost care is used, such accidents occasionally occur, and are frequently the cause of severe loss of life, and of great suffering. After a long tramp all retraced their steps to the shaft, and were "elevated" without accident or mishap, having thoroughly enjoyed the visit.

(TO BE CONCLUDED.)

AMERICAN DENTAL SOCIETY OF EUROPE.

MEETING AT VEVEY, SWITZERLAND, AUG. 26, 27, AND 28, 1884.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY DR. W. ST. GEO. ELLIOTT, OF LONDON.

AFTERNOON SESSION.

During the afternoon there was a large attendance at the clinics. Dr. De Trey removed a cement filling from a molar in which the nerve had been resected by his process some eight months previously.

Apparently the pulp was in a healthy condition. In another case the operation of resection was performed, although the patient gave evidence that it was not a painless process. A case was exhibited (a patient of Dr. Wetzel), showing extensive restoration in gold of many of the teeth; also a case of bridge work. Gold fillings were put into the cavities on either side; into the anterior one, one end of the bar containing the interposed tooth was set; a platinum hollow screw or cylinder was built into the filling in the molar; a screw passed vertically through the other end of the bar (here flattened) and was screwed into the cylinder in the molar, thus making a strong, cleanly, and easily removed bridge.

Dr. De Trey—Exhibited a case of much interest. The gentleman had broken off a right upper central, a tooth formerly partially girdled with gold. The pulp was dead, and the root gave trouble for a long time. Finally it was discovered that the tip of the root had also been broken by the blow, it making its appearance at the free margin of the gum. The main fracture was nearly transverse at the neck, and was treated by a pin in the natural crown, fastened with cement, crown, pin and all being put in place upon the root. As the labial filling had become detached by the manipulation, an impression was taken in oxy-phosphate; into the impression a gold filling was placed in the exact position of the cavity of the original filling. The impression was then broken, and the gold filling put into its place in the mouth. When examined by the members it appeared exactly as the original must have done, and served to strengthen the tooth.

Dr. Edwards—Exhibited a new matrix with applier. It was of steel, shaped like a sickle, forming a double wedge, so that when placed between the teeth near the gum it was pushed up or down as the case required, thus forming a sort of universal matrix.

Dr. Elliott—Exhibited a new mallet. The handle, cylinder, etc., were made of a new alloy—bismuth bronze—of silver color. The part held in the hand was mottled celluloid, while between this part and the hammer head the metal was flattened to make a spring. The cylinder was filled with lead, but at one end a thick cushion of leather had been inserted, thus giving great weight to overcome the loss by the softness of the leather. The mallet was pleasanter to the patient than the older forms. He also exhibited some new double-end aluminum bronze plastic instruments, the points not

being oxidizable. Also a new syringe made of the hypodermic pistonless syringe, adapted to a handle. These syringes are cheap, costing but two francs, and it is desirable to keep several on hand; one for injecting fluid gutta percha into nerve canals; another for applying the medicaments required in the treatment of pyorrhœa alveolaris; another for alveolar abscesses, etc.

WEDNESDAY, AUGUST 27.

The meeting was called to order, Dr. Edwards, Vice-President, in the chair.

Dr. Miller—Briefly discussed some disputed points in dental caries. The following is an abstract: There are many writers on the etiology of dental caries, especially in America, who, not taking the trouble to really investigate or experiment upon the subject, still think they have rendered great service to the profession when they have covered pages with quotations from Cohn, Pasteur and Tyndal, regardless of date, relative to the wonderful effects which may be produced by micro-organisms. It would be advisable for those who wish an insight into the subject of mycology to turn their attention to the much more exact researches of the present German school. Even then, such work as this could never bring us any nearer to an understanding of the phenomena of dental caries. The question is not what bacteria in general have been known to do, or how many of them may dance upon the point of a needle, etc., etc. It is, what *do* the micro-organisms which are found upon or in the teeth do? And all the experiments that have ever been made, unless upon the teeth themselves, could not furnish an answer to the question. We must know the fungi themselves, and their characteristics, and then we may reason intelligently as to what their effect will be when placed under such conditions as are found in the human mouth. In short, we must study *caries dentium* by the same methods by which tuberculosis, pneumonia, cholera, etc., have been studied; i. e., by the method of pure culture. I do not mean, however, to enter into a discussion of these questions here; I wish only to refer briefly to two facts that I have long since established, but which have been lately called in question. These are the possibility of producing caries artificially, and the existence of carious dental tissue which contains no micro-organisms. With regard to the first of these, I can only reiterate what I

have so often said before, that I have produced caries artificially, which is not to be distinguished from natural caries, as Dr. Bödecker and many others can testify.

With regard to the second question, I may say that I have never yet examined a decaying tooth that did not demonstrate the fact referred to. It is often particularly pronounced in cases of extensive decay on the grinding surface. If we break away the overhanging walls of enamel, and scoop out thoroughly the carious dentine in one piece, sections of the same properly stained will show large territories at both ends which do not contain a trace of organisms, simply because they cannot travel perpendicularly to the dentinal tubules as fast as the acids can. At the bottom of the cavity may also be found tracts containing no organisms, though generally not so extensive. Dr. Miller then took a piece of carious dentine from a tooth of the above description, prepared specimens from it, and demonstrated on them as well as on many other preparations, to the satisfaction of all present, the truth of the views set forth. He further exhibited a number of preparations of artificial caries which no one ventured to distinguish from natural caries.

Dr. Du Bouchet—What do you consider the best antiseptic?

Dr. Miller—I would refer to my papers in the *INDEPENDENT PRACTITIONER*, one of which gives a list of substances tested for their powers in this respect. However, hydragrum bi-chloridum is, doubtless, the most potent; but as it is a powerful poison it must be used diluted, say to one per cent.; but it would seem that iodoform fills the requirements as well as it is possible to expect.

Dr. George—Does the decalcified portion you have mentioned, in which there are no micro-organisms, become recalcified?

Dr. Miller—No doubt it *may*.

Dr. Terry—Would it not be safe practice to excavate the decalcified part and fill with cement?

Dr. George—But the recalcification is certainly better than any artificial substitute.

Dr. Miller—Of course, if in excavating you cut off the tubules from the pulp, you can have no recalcification.

Dr. Bodecker—Recalcification can only occur near the pulp. There must of necessity exist a grade of low inflammation, the same as in all cartilaginous parts, and before recalcification can occur, there must be a so-called retrograde metamorphosis; that is, there

must be a breaking down of the more complex into the more simple elementary combinations, and from this medullary condition advance.

It has afforded me a great deal of pleasure to make as thorough a study as time would permit of a number of the fine preparations of Dr. Miller, both natural and artificial, and I must say that they fully corroborate everything that he has said. I have not, however, as yet been able to give much attention to this subject.

Dr. Terry—Has Dr. Miller always found the same fungus?

Dr. Miller—No. There are at least five different kinds of fungi which prey upon the human teeth; not, however, all upon one and the same tooth. They can exist without free access of air, and do not appear to be instrumental in producing putrefaction.

Dr. Terry—All the varied forms of decay have a cause in organisms, have they not?

Dr. Miller—Yes, I think so.

Dr. Terry—Is there, then, one which might be considered normal?

Dr. Miller—That is a very difficult question; the fungi have a separate existence, and are not the result, but the cause of decay. The latter, so far as the organisms are concerned, is the normal result of their action, but as far as the teeth are concerned we would probably call it an abnormal condition.

Dr. Terry—All air, then, contains the organisms. Does the air found at different attitudes or in different places contain different amounts of the fungi? Is the air of the Engadine freer than that of Vevey?

Dr. Miller—Yes; undoubtedly temperature, humidity, elevation, etc., are important in determining the numbers, but perhaps humidity is the most important. When moist the organisms stick to anything they may come in contact with, but when they become dry they are released and float in the air.

Dr. Terry—The French, in opposition to Dr. Koch's views, water the streets during the cholera epidemic. Are there organisms in the blood?

Dr. Miller—In a state of perfect health there probably are not; but when any pathological condition is present there may be. This is my present impression.

(TO BE CONTINUED.)

AMERICAN DENTAL ASSOCIATION.

TWENTY-FOURTH ANNUAL MEETING, AT SARATOGA.

REPORTED FOR THE INDEPENDENT PRACTITIONER BY PROF. CHAS. MAYR.

(Continued from page 631.)

Section VII was called, Physiology and Etiology. The report was presented by the Chairman, Dr. W. C. Barrett.*

DISCUSSION.

Prof. Chas. Mayr—Almost all the differences in the several views about caries seem to come from an indefiniteness of what and where the caries really is. If a patient comes to you with an aching tooth, is the ache the caries? Certainly not. Or the tooth? Again not. Or the plug you dig out? Not at all; but while you began to dig the patient first said nothing, then he became nervous and complaining, as you reached a certain point, which irritability again disappeared when you came into healthy dentine. The caries comprises, therefore, only that small diseased layer, probably not over $\frac{1}{100}$ of an inch thick, that was sensitive; outside we have the worthless plug or corpse of the tooth substance; inside, the healthy tooth. Dr. Miller seems to have mostly examined the corpse and produced the corpse, but not enough of that extremely small borderline. In an abscess the pus is not the seat of the disease, nor the inflamed tissue underneath, but that small layer of tissue where the physiological—or if some fogies like the word better, pathological—processes are going on, and the study of this layer will enlighten us about the abscess, but neither the pus nor the inflamed tissue underneath will tell us much.

Dr. Atkinson—What is a process? It is a-going on of something. What is a thing? A thing is a think. Pathology is only perverted physiology. The function of building a tooth is its evolution; the decay, decadence, its downfall. The typical order of the enamel is a modification of that of the dentine; the enamel is really a living tissue, as shown by the presence of protoplasmic strings between the enamel rods. The bacteria are not found in the basis substance, but in the tubuli of the dentine, going towards the pulp.

* The paper is omitted for want of space.—EDITOR.

Dr. Spaulding—I have long held the opinion that there is no pathological science except it be preceded by physiological science; that there is no pathology *per se*, and that there are no such things as pathological functions, processes and growths. They are physiological functions, processes and growths, out of place. It is the inversion of true physiological forces that produces the exhibition of pathological growth.

Dr. Barrett—We cannot speak of the power of a bacterium as that of a raging animal, boring into the teeth for the purpose of devouring living tissue. That is not the character of the fungi of caries. They are of a vegetable nature. Putrefactive and fermentative conditions are almost the converse of each other. Putrefaction does not exist at the same time with fermentation. From my own standpoint, the rationale of decay is about like this: First, there will be decalcification of the exterior portion of the enamel; thus the dentine is reached, and at perhaps a single point the lime salts are removed. The decalcified substance becomes a spongy mass that takes up within its pores saccharine fluids from the mouth. These are favorable to the development of fermentive fungi. In the course of their existence they produce an acid which Dr. Miller proves to be lactic acid, which continues the work of decalcification, and so *ad infinitum*.

Dr. Abbott—Dr. Barrett said we ought to deal with actualities, and not with ghosts; what we have been able to discern with the naked eye or the strongest power of the microscope. Does this enable us positively to say that there is nothing beyond? Dr. Miller seems to neglect the fact that the tooth has twenty-five to thirty per cent. of organic material, which makes of it a living organ.

The discussion was brought to a close by the arrival of the hour set apart for the organization of the sections, and this business occupied the society until the time for adjournment.

WEDNESDAY EVENING SESSION.

By special vote of the society the evening session was occupied by Dr. J. L. Williams, of New Haven, Conn., who read a paper upon "The Origin of Enamel and the Nature of the Odontoblast Cells." It was illustrated by a great number of very beautiful preparations, the images of which were projected upon a screen by means of

the stereopticon. Owing to the necessary darkening of the hall, as well as to the absorbing beauty of the preparations, which continually distracted the reporter's attention, the notes of the paper are not as full and perfect as they might otherwise have been.

The speaker commenced by criticising the expressed views of Dr. Garretson, Dr. Cryer and others, and stated that he would demonstrate they were based upon faulty preparations and imperfect knowledge.

He had presented this matter at the last meeting of the New England Dental Society, and it was then privately remarked that it was of little importance whether or not his own theory was the correct one. He differed from them, for it was impossible for one to undertake, with any hope of success, such a work as the joining together of parts of broken teeth, without a definite knowledge of the nature of the process. Besides, as professional men, it is our bounden duty to obtain all the knowledge possible of the tissues upon which we operate.

It is of the greatest importance that the student should be correctly taught concerning this subject. The purpose of this paper was to point out the most important fallacies still existing in the minds of dentists concerning the structure of the teeth. For that purpose he would consider what is stated about the development of the papilla in the pulp, and show that there is an enamel organ which has a definite structure, and that the formation of this enamel organ takes place from the dentine outward. He would show that the odontoblasts are ganglionic elements, sending branches into the dentine and the pulp. To answer the question why this was not established before, he would say that it is very difficult to obtain specimens that show the natural relations of the dental tissues to each other and to the surrounding tissues without breaking the continuity of the structure. A great number of microscopic slides were shown, most of them photographic; a few, diagramatic.

First slide—From a professional dealer in microscopical specimens. In this you may see the appearance of what Dr. Garretson calls the *utricula reflexa*. All the delicate structure, the basement membrane, and the enamel organ are destroyed; this slide has some historic value, just as the implements of the stone age tell us of the progress that has been made.

Second slide—This is in contrast with the foregoing. The old

views were derived from balsam-mounted specimens, which define less distinctly than those mounted in glycerine. This slide shows the first differentiation that marks the beginning of the tissues; it is perfect in every way, except at one point. The groove of which Dr. Garretson speaks is filled out with the enamel organ, which is destroyed very easily by careless preparation. The former logic in support of the theory about the formation of the enamel ran thus: The enamel is an epidermoid structure; all epidermoid structures are formed in the same manner—ergo, the enamel must be formed in the same manner. This is only a trick of logic, not supported by any evidence. A vast amount of ignorance may conceal itself behind a general physical law. A little definite knowledge is better than generalizations, which may sometimes mean something, but generally do not. How a tissue which never grows after it has been destroyed can be compared to one which is constantly thrown off and replaced by a new one, is beyond comprehension.

Third slide—Tinted a very little with carmine, beautifully shows the origin of the dental tubuli and their ends.

Fourth slide—Shows a permanent tooth, with the pulp removed and the dentine cells in some places intentionally forced away from the enamel.

Fifth slide—Shows a cut through a temporary tooth, a little to one side of the center, cutting through the completely formed enamel with its hexagonally divided appearance.

Sixth slide—Shows something like crotchet work. It is possible that the enamel may be formed by intercellular deposits; of such formations we have analogies; the placoid scales are formed in the same manner; they have spinous projections that have an enamel layer which is deposited as a cuticular deposit of the epidermis. This crotchet-like looking tissue is from the embryonic shark; it looks like an embryonic tooth.

Seventh slide—From Balfour's embryology, shows the formation of placoid scales in a placoid fish, identical with the development of the teeth.

Eighth slide—Shows the cord which is drawn down at the first folding of the dental cyst, and which develops from the columnar layer of epithelium. It is already broken from its union with the upper layer, and the tooth cyst is isolated thereby; this specimen

shows also the development of a beautiful reticulum of the enamel organ; I have not determined whether it is developed by direct reformation of cells, or by a breaking down of embryonal tissue. After the completion of the enamel the organ is exhausted, yet it remains on the lower side of the tooth until its work is also done there, after which it disappears.

Ninth slide—Shows an additional proof of the existence of the enamel organ; the enamel-forming cells and the reticulum are there, but the stellate cells, seen in the former specimen, are no more. On the top of the tooth the enamel organ has disappeared, and the calcification is complete. At the sides it is not complete, and therefore it still exists there. The pericementum makes its appearance, and thus a connection of the tooth with the external world is established.

Tenth slide—You remember that on a previous slide, No. 8, at the lower end of the enamel cap, there was shown a columnar layer of cells which came, in the development of the cord, from the columnar layer of epithelium above. This is a highly magnified view of this point at a later stage. The columnar layer has disappeared, and the space is occupied by indefinite embryonal tissue, or indifferent corpuscles. The reticulum of the enamel pulp, shown here, is very beautiful. The embryonal corpuscles forming the lower part of the indifferent tissue are developed from the ameloblasts, or enamel-forming cells.

Eleventh slide—Shows a somewhat advanced tooth germ; the ameloblasts are above the flattened layer; above it is also visible the reticulum of the enamel organ.

Twelfth slide—Shows the ameloblasts in the form of biscuits; the analysis proves that this portion is highly impregnated with lime salts. I call your attention to the odontoblasts. You know that Dr. Heitzman and others have represented them as round corpuscles, between which the dental fibrillæ pass. I have satisfied myself that this has been an erroneous view, but it was not until within a short time that I have succeeded in cutting a section so thin that only one layer of odontoblasts was obtained. I can show you photographs in which the dental pulp and the enamel pulp are in perfect contact, and others where the first faint traces of dentine and enamel appear. (The photographs were here exhibited.)

This specimen I exhibited to Drs. Heitzman, Bödecker, and Atkinson; Prof. Heitzman only glanced at it, when he turned to Dr. Bödecker with frankness and said, "It is evident we have made a mistake;" subsequently, he thought he could detect delicate fibres passing between the fibrils.

Thirteenth slide—You see the prolongation of the odontoblasts into the tubuli; one point shows two fibrillæ originating from the odontoblasts. I discovered that sometimes three or more fibrillæ are projecting.

Fourteenth slide—I have often been asked how I explained the formation of dentine. Do these cells perform a double function? are they the elements of sensation as well as of the formation of dentine? We often see a multiplicity of functions performed by embryonal cells. The odontoblasts are essentially neural matter, and are probably also the secretive elements of the dentine. Some species of molluscs show similar cells in the digestive tract, and they are exhibited in this photographic slide, thus proving their multiplicity of function. I trust that this addition will prove of benefit to all. I have sometimes spoken a little sharply, because I would not like to see the results of the study of years set aside by a hasty examination of inferior specimens and sections.

At the close of the very instructive and interesting address of Dr. Williams, Dr. J. H. McKellops asked the suspension of the order of business that an announcement might be made. Leave being granted, he called upon Dr. W. C. Barrett, who aroused the sympathy of every member by relating the particulars of a very painful accident that had just occurred. The little, motherless boy of Dr. W. R. Clifton, of Texas, was, in company with his nurse, crossing the street, when a carriage, driven at a reckless speed, ran over him, crushing the skull and breaking a number of bones. The sympathy of the Association was tendered Dr. Clifton, and the executive committee was, by vote, directed to engage physicians and nurses, and to take measures to bring the criminally reckless driver to justice.

Dr. Atkinson—Desired to express his obligation to the writer of the paper, and had commenced a consideration of some of its points, when he was interrupted by Dr. C. W. Spalding, who said that he had been so shocked by the relation of the terrible accident that he was in no mood for a discussion, and he thought others

were in the same state. He therefore asked the speaker in possession of the floor to give way for a motion of adjournment.

Dr. Atkinson—Said that he was astonished at the puerility of the excuse for adjournment. We were never more clearly in the way of right than when we were pursuing the path of duty and earnestly laboring at the business directly before us. He declined to give way, and continued his remarks, but the sentiment of the meeting was evidently against him, and the members left in such numbers that an adjournment for want of a quorum was soon a necessity. The painful accident seriously interfered with the consideration of the paper.

CENTRAL DENTAL ASSOCIATION OF NORTHERN NEW JERSEY.

MEETING AT THE RESIDENCE OF DR. C. S. STOCKTON, NEWARK, TUESDAY
EVENING, OCTOBER 20, 1884.

The President and Vice-President both being absent, Dr. J. Allen Osmun was elected chairman.

After the transaction of the usual routine business, Dr. Edwin T. Darby, of Philadelphia, read a paper upon "Professional Services and Professional Fees." (See page 653.)

DISCUSSION.

Dr. J. W. Clowes—The paper is certainly a very interesting one. There are many points in it that are well worth consideration. As regards fees, I have the matter very well regulated now, so that I quite enjoy the practice of dentistry, with the making out of bills and receiving the pay. When a patient comes to me I say: "I understand that you have come to have your teeth saved. This I cannot do except by doing everything there is to be done; being thorough, doing it well, and doing it all." When they thoroughly understand that, they see the reason for the possibly high figures in the bill. If there is much to do the total will be larger than if there is but little. The charges are moderate, individually, but if there is much work done the aggregate will necessarily be large. As regards charging by the hour, I must say that I do not like it. It is bringing our profession down to the level of a day laborer.

Dr. C. F. W. Bödecker—While in Europe, this last summer, I observed a good many hundreds of teeth, and learned something

with respect to prices of fillings. I went into the office of a dentist, in a small town in the northern part of Germany, and in the course of conversation he said: "I have to work pretty hard; my fees are very small, and in order to make twenty-five marks (about six dollars), I must have a good many patients." I asked him how much he charged for a gold filling, and he replied that he did not insert any, not being able to get a paying price for them. "But," I said, "in case anybody should come and offer you your price, and asked to have a gold filling inserted?" "Well," he said, "nobody ever will come; or if they do come they say: 'I should like to have a gold filling, but they all tell me that if I do it will fall out, and that a black filling will stay; so I would rather have a black filling;' and the consequence is we put in amalgam fillings altogether, whether the cavity is in front or back." "How much do you charge for amalgam fillings?" "One mark." (About twenty-five cents.) "And what is your price for gold fillings?" "We don't get more than two marks." He told me he bought an eighth of an ounce of gold when he began practice, eight years previously, and three-quarters of it was on hand yet. He had more to do in making artificial teeth than in filling the natural teeth, as the people in that part of the country believed that filling did not do any good, unless they went to an American dentist; the Americans had some funny way of getting around the patients, and could induce them to have gold fillings put in. At all events, he believed it was not so much the skill of the American dentists, as their manner of persuading the patient to have it done, that made them more successful. He told me he was pretty sure he could put in a gold filling just as well as I could, if he could only get the opportunity and the price for it; but the difficulty was that the people would not pay for it, and so he let the gold lie in the drawer. The fees in the larger cities of Europe were a little better. I met some American gentlemen there who charged for the smallest service fifteen marks; and those gentlemen, when they have a cavity of more than ordinary size, call it two, or three cavities, and double or triple the price. I was very much astonished to see that in that way some of the dentists in Europe get quite as much money out of their patients as we do in America, and in some instances a great deal more. On the other hand, German dentists are very moderate in their charges, although some of them are

very skillful; they do excellent work, yet they cannot obtain reasonable fees. One gentleman, of whom you have heard, who does almost nothing else than putting in gold fillings, and who inserts a great many of them, cannot get more for a gold filling than about ten to fifteen marks, or two and a half to three dollars; or four dollars for the largest fillings. In the same city there is a gentleman who was for some time in America, and although he is not a very good operator—I have seen several of his patients in that city—he is able to obtain much higher fees than the other dentist, simply because he has been in America. So it seems that an American name draws, so far as dentistry is concerned.

Dr. E. Parmly Brown—I do not believe in working by the hour, nor in the English system of charging, as related in the paper. There never yet was created a dentist so good and so godly but that he would give a short hour to his patients if he were to adopt that system of charging. No man is so perfect that he can afford to lead himself into temptation, and no man can remain honest unless he has correct habits, and surrounding circumstances that tend to keep him so.

Dr. C. E. Francis—I can remember the time when the average compensation for tin fillings was seventy-five cents, and a dollar and a half for gold. First-class dentists received about double that amount, and three dollars was about the maximum charge of such men as Dr. Parmly, who once remarked to me that one of the most difficult things he ever undertook was to raise his fee for gold fillings from three dollars to five. As to charging by the hour, it does not, to me, look professional.

Dr. M. L. Rhein—I have in my practice followed a combination of the two systems of charging. When a patient has a long sitting, I have an average price by the hour for that sitting. For brief operations I make a specific charge.

Dr. C. S. Stockton—The only point that I wish to emphasize is, that if the patient of another dentist comes to us and complains of his charges, we should assume that the dentist has been conscientious. We do not know just how much labor may have been expended, and we should stand by each other and our profession, and not criticise the fees of another whose time may possibly be more valuable than our own.

Editorial.

DEAD TEETH IN THE JAWS.

The Medical Record has contained a number of articles under the above heading. Samuel Sexton, M. D., of the New York Eye and Ear Infirmary, in an article upon "Pain in the Ears Due to Irritation in the Jaws," relates a number of cases of otalgia and inflammation, complicated with dental caries. That diseases of the ear are frequently induced by dental lesions, no intelligent dentist will for a moment doubt. In commenting upon the cases, Dr. Sexton said that "it was believed that since dentistry had become such a popular business, and dead and diseased teeth had been so carefully retained in the jaws, through their influence, especially among the better-to-do, nervous diseases about the head were becoming alarmingly common. The very custom of wearing false teeth in the mouth attached to vulcanite rubber, celluloid, and other plates, was also an evil of vast proportions. Indeed, he sometimes thought that the evil done through ill-advised dentistry was greater than the possible good arising from the work of the more capable dentists."

There is something of truth in this expression of opinion. The question has often been seriously debated whether the medical profession itself, as a whole, taking all schools and classes into consideration, was not productive of more harm than good, and any thinking medical man must admit that it is really a debatable matter. What then? Should medicine be abolished, and all the competent physicians be forced into other avocations because quacks abound? Shall we burn the building to rid it of its vermin? That dentistry is cursed with so many incompetent men is largely the fault of medicine, which refused the overtures of Harris, and Bond, and their compeers, when they proposed that dental chairs should be established in medical schools, and thus make the treatment of dental diseases a direct specialty of medicine. Now that dentistry has, despite this mistaken policy, "become such a popular business," and now that oral diseases are so generally relegated to dentistry, medical colleges are beginning to see a necessity for the step formerly urged upon them in vain, and chairs of oral surgery and oral diseases are being established in most of the leading medical colleges, not to teach *dentistry*, but to give instruction in a large and impor-

tant class of maladies, so that medical men may be saved from committing the grave errors that constantly fall under the observation of intelligent dentists. There is no class in the community that more sorely needs a little dental information than does the general practitioner. Properly educated dentists almost daily have their hearts wrenched by the knowledge that physicians, who loudly proclaim their desire to keep up the standard of professional ethics, are in the habit of referring their patients to the veriest dental quacks in the neighborhood, passing by the regular graduates and selecting some advertising charlatan, who is quite incapable of saving either a dead or a living tooth. Medicine sadly needs information as to what is good dentistry, and as to what it is within the province of good dentistry to accomplish. This is amply illustrated in the paragraph quoted above—"dead and *diseased* teeth * * carefully retained in the jaws." Does any intelligent physician believe that good dentistry retains *diseased* teeth? It would seem so by the quotation. Dr. Sexton should understand that it is the dentist's business to restore such to a state of health, or, failing in this, to exercise the surgeon's art, and remove them.

But the editor of *The Medical Record*, taking Dr. Sexton's article as a text, proceeds to preach a sermon that is misleading, because it is founded in a misconception. He says: "It would not be strange if, in the course of events, the day would soon come when * * * all teeth without pulps, and hence in process of more or less rapid decay, as well as those which the deposit of tartar, or other cause, had entirely divested of periosteal nourishment, would be promptly condemned as unfit to remain in the jaws—regarded, in fact, as liable * * * to endanger the general health, through purulent matter discharged into the mouth from alveolar abscesses, to be continuously swallowed for a long time, or, indeed, in some instances, to be absorbed, and thus produce septicæmic poisoning."

This assumes that teeth without pulps cannot be otherwise than in a state of continuous decay; that pyorrhœa alveolaris is incurable, and that good dentists look with indifference upon alveolar abscesses. Pulpless teeth, if properly managed, become as serviceable and as innocuous as any other, and their treatment, with that of the two latter conditions, forms a large part of the practice of every competent dentist. What would be thought of the surgeon who, in every case of abscess of a limb, counseled amputation with-

out even an attempt at a cure? The editor of *The Medical Record* would, if his advice be followed, reduce dentistry to mere mechanical handicrafture, and the same counsels carried into the domain of medicine would leave every other patient to be provided with a wooden leg or arm, while in ophthalmology there would remain little to do save to insert glass eyes. It should be remembered that a pulpless tooth is not deprived of nourishment, and that a diseased peri-dental membrane is as amenable to judicious treatment as is any other tissue of the body. The surgeon does not despair of the reproduction of periosteum when, during operations, a portion is necessarily removed. Why, then, should it be thought a thing incredible that it may ever be restored when a part of it is lost about a tooth?

But he goes on to say: "There has always been a desire to combine the medical art with the mechanics of dentistry, but the medical training usually given the dental apprentice is entirely too superficial to qualify him to treat diseases, whether arising from the state of the teeth or not; in point of fact, his training does not always prevent harm being done to persons who are willing to have placed in the mouth some one or more of the numerous harmful dental appliances of the present day."

A considerable proportion of the dental profession are regular graduates in medicine. Are they lacking in medical training? If so, whose fault is it? Many more are graduates of reputable dental colleges, the most of which have medical men to fill the medical chairs. Is their medical training insufficient? If so, again whose fault is it? There is a class of dentists who unfortunately came into dental practice when medical schools refused to give any facilities for their special study, and dental schools were not founded, or were in their infancy. They have been hard students all their lives, and have had an experience that, in some cases, is worth all the didactic teaching of the schools. Have they had no medical training? The editorial in question is not only largely founded in a misconception of dental practice, but it seems to us very narrow and intolerant in its scope. The old days of a mechanical apprenticeship in dentistry have long gone by, and the law of the State in which *The Medical Record* is published prescribes what shall be the acquirements of a competent dentist. If medical men ignore, or are ignorant of these requirements, and choose for their patients and

themselves the unqualified and incompetent, they have no right to accuse good dentistry of having no higher status than that exemplified by their own chosen practitioners.

It is probable that no properly educated and intelligent medical men ever saw graver mistakes committed in the diagnosis and treatment of oral diseases by dentists than have the latter by physicians. Cases of un-erupted teeth, impacted teeth, and buried roots of teeth, have in many cases been treated by physicians for months, under the mistaken impression that they were tumors of—Heaven only knows what class. Dental irritations of the simplest kind have been diagnosed as neuralgias of deep-seated origin, and operations without number have been undertaken or proposed for their relief. Every dentist can relate scores of such cases within his own practice. What then? Does this prove that medical science in its application to oral diseases is a humbug? By no means; but it does incontestibly demonstrate the necessity for the existence of competent oral specialists—in other words, good dentists.

That there is a class of dentists whose almost sole practice consists in the extraction of teeth for the purpose of supplying their loss with artificial plates, is a matter of regret. But they are simply carrying into practice the implied advice of the editor of *The Medical Record*, in removing “teeth without pulps, teeth with sensitive pulps, as well as those which the deposit of tartar or other causes had divested of periosteal nourishment.” The propriety of the coupling of mechanical and operative dentistry together has been a vexed question, even among dentists; but it is one that readily settles itself. There is nothing peculiarly incongruous in their connection, nor does the one necessarily unfit the practitioner for the other. With as much propriety might it be urged that the general practitioner of medicine should undertake no cases of surgery, or ophthalmology, or otology. In the large cities, or in a dense population, where there is enough of practice for every specialist, these matters arrange themselves, and the man in general practice refers his surgical cases to the surgeon. So it is in dentistry. The prominent operative and medical dentists either send their mechanical work outside, or employ a mechanical dentist to do it under their direct supervision. But in small villages, in sparsely settled districts, the physician not only makes his own prescriptions, but he must be his own pharmacist. He must not alone attend to

calls in general medicine, but he must be an obstetrician, a surgeon, an ophthalmologist, and in some cases a dentist. It is no more a reproach to him that he occasionally pulls a tooth than it is that the regular dentist sometimes fashions an artificial denture. Indeed, no one is quite capable of deciding just how and in what manner a plate shall be inserted save the qualified dentist.

We quite agree with the editor when he says: "It is certainly gratifying to note the establishment of instruction in oral surgery in some of the medical schools, and it is to be hoped that this subject will receive the attention its importance demands." But when he further says—"It must not be supposed, however, that 'dentistry' should be taught, for surely this in its broadest sense by no means constitutes oral surgery;"—we raise our hands in astonishment. If dentistry does not include oral surgery, in the name of all the saints at once, what does it include? What kind of a thing does the editor think a dentist should be? He has already inveighed against the ignorance that improperly treats diseased teeth. Would he divest them of the knowledge that they now have, and make mere mechanics of them? But he denounces the incompetence that inserts artificial teeth without a due knowledge of the medical requirements of the case. How shall this be obtained without some medical study? We must confess that we cannot comprehend what he is really driving at, and must conclude that he has either spoken without due consideration, or in the absence of sufficient dental knowledge to enable him to be a competent and impartial judge. We do not believe that "dentistry" should be taught in medical schools, but we do think that physicians should have enough knowledge of dental and oral diseases to be able to diagnose them, and to refer to those best qualified to treat them such as properly fall within the province of the dentist, and it is just that instruction that we are endeavoring to give in the Medical College with which we have the honor to be connected.

We have deemed it within the sphere of our duties to speak thus plainly upon some of the relations of dentistry to medicine, but it is not here that the first antidote has been applied to the articles, the general tone and spirit of which are much more offensive than the express language. John S. Marshall, M. D., J. Morgan Howe, M. D., C. E. Nelson, M. D., and A. W. Harlan, M. D., have all contributed to *The Medical Record* excellent articles upon the subject.

A MODEL REPORT.

A model for dental reporters may be found in the account of the papers and discussions of the Dental and Oral Section of the American Medical Association, furnished this journal by the secretary, Dr. John S. Marshall, of Chicago, and concluded in this number. The abstracts of the papers have presented all the salient points without any unnecessary verbiage, and each number has been complete in itself. Rarely has it been the good fortune of any journal to secure such excellent accounts of the doings of any professional body.

Current News and Opinion.

DENTAL SCHOOL IN BERLIN.

A new dental school, called "The Dental Institute of the Royal University," has been opened in Germany, by direction of the *Kultus Ministerium*, with Professor Dr. Busch as director, and Professors Dr. W. D. Miller, and Dr. J. Paetsch, as Professors of Operative and Clinical Dentistry. The mechanical department will be in charge of Zahnarzt C. Sauer.

It should be remembered that in Germany the title of Professor is conferred by government. The "Kultus Ministerium" is a department of government, and under the charge of a minister. There is a Minister of State, a Minister of War, etc., and the "Kultus" Minister has charge of all educational and church matters, art, and everything pertaining to culture. A "Professor," then, in Germany, is an officer under the government. We heartily congratulate our *confrere* upon this deserved and distinguished honor, and in this connection present the following appreciative letter from one of his colleagues:

BERLIN, October 19, 1884.

Editor Independent Practitioner:

One of your countrymen and collaborators of the INDEPENDENT PRACTITIONER, Dr. W. D. Miller, who has been a practicing dentist in Berlin for a few years past, has now received from our "Kultus Ministerium" the honorable distinction of "Royal Professor in the Berlin University."

Dr. Miller is the first foreigner on whom such an honor has been bestowed, and he owes this distinction chiefly to his scientific in-

vestigations, and to his valuable essays, the most of which were first published in your journal. I send you this that you may know that we in Germany recognize the attainments and merit of your countryman.

Very truly yours,

J. PAETSCH, M. D., D. D. S.,

Balt. Dent. Coll., 1865.

OBTUSE.

Editor Independent Practitioner:

In the November number of *Items of Interest* "J. R. Trust" gives evident indications that he can neither see nor take a joke. He must be one of the Scotchmen of whom Dr. Johnson tells, who required a surgical operation to get a jest into their heads. Hereafter I *trust* that you will imitate the perspicacity of the lamented Artemus Ward, and to assist his comprehension add at the bottom of your humorous articles "This is a Goak"—"This, and nothing more."

"ONE WHO HAS BEEN THERE."

MURIATE OF COCOAINE.

Too late for insertion in this number, we have received from Dr. Julien W. Russell a report upon the use in dental practice of this newly discovered local anæsthetic. He finds it of great utility in all cases of surgery in the mouth, for obtunding sensitive dentine, for rendering insensible the tissues of the mouth in taking impressions for patients who are liable to nausea, and especially for the painless removal of living pulps. It is of little benefit in the extraction of teeth. We regret that his article did not come in time for insertion entire.

THE OHIO STATE DENTAL SOCIETY.

This association was reorganized and chartered Oct. 31, 1884. It will be officered as follows:

President, C. H. James, of Cincinnati; Vice-President, H. H. Harrison, of Cadiz; Secretary, J. R. Callahan, of Hillsboro; Treasurer, G. W. Keely, of Oxford. It will meet on the last Wednesday of October, 1884, at Chillicothe, Ohio.

J. R. CALLAHAN, *Sec.*

(31.) Will some one give a cure for mouth-breathing? I have a case that I am very desirous to cure, and am at my wits' end as to the proper course to pursue.

C. L. H., KANSAS.

(32.) Will some dentist of experience briefly describe the method he has found most successful in capping exposed pulps, and so benefit many younger members of the profession?

A. B. M.

(33.) The effect of nicotine upon the mucous membrane of the mouth is fairly well known. Will some practitioner who has experimented (if there be such), state the effects of nicotine upon the normal tooth, or upon the dentine when through caries it has been denuded of enamel?

C. E. H., P.

(34.) I have a case that puzzles me. A boy, hardly eight years of age, received a blow on a left superior central incisor, which has become somewhat discolored. Is it safe to open into the pulp cavity and remove the pulp in so young a tooth?

IOWA.

(35.) It has been stated that dentine is less sensitive to the touch of an excavator where the cavity is kept dry than when prepared under moisture. Will some reader of your excellent journal please explain why this is so?

B. L. S.

(36.) Have our scientists settled the question as to whether carbolic acid is an *antiseptic* or *disinfectant*? or is it neither?

W. S. R.

Answers.

TROUBLE (26.) In taking your bite your upper plate springs from the roof of the mouth. You replace it on the cast, and press it down to fit. This will cause the molar teeth, when it is finished, to be too long every time. If the plate springs from the roof of the mouth when the bite is taken, leave it so on the cast, and you will have no trouble.

G. M. MERRITT, Jersey City.

D. D. S. (27.) There is nothing better, in my opinion, for coating an impression than a not too thick solution of red shellac, the impression to be dipped in water before pouring. You are thus enabled to see just where the line of division is, or to carefully cut the impression away from the cast where there are undercuts, and from between teeth. If the shellac coat be allowed to dry on the impression, it will not peel off or separate.

ANOTHER D. D. S.

L. (29.) When the blood flows from the socket of an extracted tooth, little is needed save to roll up some cotton lint into a hard plug, a little larger than the socket and of a shape to fit, and force it down to place, and hold it there until a clot is formed in the vein or artery. Do not use any of the preparations of iron as hemostatics, but, if necessary, place a cork, properly cut, upon the cotton to hold it firmly in place, and bandage the jaws together. The dangerous cases are those in which there is a hemorrhagic diathesis, and then the blood does not come from the socket, but oozes from the gums anywhere.

WESTERN DENTIST.

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